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VETERINARY MEDICINE

JULY 1936

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75 E. Wacker Drive
Chicago, U. S. A.

ENTERITIS IN IRISH SETTER VANISHES AFTER 25 DAYS ON EXCLUSIVE PARD DIET

Case history reported by a prominent Chicago veterinarian (name and address on request)

On March 31, 1936, a 2-year-old Irish setter was brought to this veterinarian in obviously bad condition. Its symptoms were:

NERVOUSNESS
MUSCULAR TWITCHING
DRY, LUSTERLESS COAT
EXCESSIVE SHEDDING
THIN, UNDERWEIGHT

Fecal examination showed that the dog had no internal parasites. The case was diagnosed as enteritis, brought on by malnutrition, which in turn had been caused by faulty feeding. (The dog's previous diet had consisted of table scraps and a meal-feed.)

No medication or other special treatment was used; the dog was simply placed on an exclusive diet of PARD, Swift & Company's **canine-tested** feeding formula, and water. Soon improvement was apparent, and one by one the symptoms faded and disappeared. On April 25th, just 25 days after the Pard diet had started, complete recovery had taken place and the dog was in splendid condition. Swift & Company, 4202 Packers Ave., Chicago, Ill.

PARD *CANINE TESTED FEEDING FORMULA*

CONTENTS:
55% Beef Meat Food Products (dry weight basis) . . . Cracked Whole Wheat . . . Barley . . . Tomato Dry Skim Milk . . . Edible Bone Cod Liver Oil . . . Sodium Chloride

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Bio. 810. 20-cc. rubber-diaphragm-capped vials.

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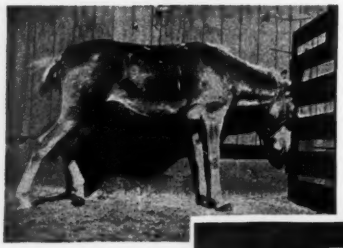

1. *Leaning Type — Paralyzed Tongue*
2. *Sleepy Type with Beginning Incoordination*
3. *Base Wide Attitude*

Photos Courtesy Dr. Records

Encephalomyelitis is Controllable!

THE SEASON is at hand when encephalomyelitis will take its toll of the horse population. Be prepared! Have sufficient ANTI-EQUINE ENCEPHALOMYELITIS SERUM ***Lederle*** ready for emergency needs.

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Administered subcutaneously in two doses with a 14-day interval.

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D. M. Campbell, Editor A. T. Kinsley, Associate Editor
H. J. Mostyn, 1265 Broadway, New York, Eastern Representative

The tongue is the best place to vaccinate animals against rabies, according to Drs. John Reichel and J. E. Schneider of the Mulford Biological Laboratories.

* * * *

A German governmental decree provides that: "Foodstuffs are not proper objects of speculation and in this sense not trading ware. The farmers must receive a good price. Foodstuffs shall not be made dear to the consumer through speculation. The dealer may earn his wages therefrom, but not more." This works out in the case of fluid milk as follows: The dairymen deliver milk to the pasteurizing plants at 3.5 per quart. (The sale of raw milk to consumers is prohibited.) The pasteurizing plants supply the distributors at 4.5 cents a quart. The distributors retail it at 5.5 cents a quart. Before the decree, pasteurization was not compulsory; the farmers sold to the distributors at 2.2 cents a quart and the distributor in turn sold to the consumer at 6.5 cents per quart. Thus formerly, the producer received 34% of what the consumer paid; now he gets 64%. Formerly, the middlemen's share was twice the farmer's; now it is four-sevenths of the farmer's price and for that they render a greater service (pasteurization) than they did for the larger share.

The Bureau of Animal Industry has experimented with several hybrids, such as a cross between the zebra and horse, producing an animal called the zebroid. Like the cattalo, produced by crossing domestic cattle and the bison, this zebroid is a scientifically interesting creature, but unlikely to have an important commercial future.

* * * *

America had none of the wild animals that became ancestors of our modern live stock, except one—the turkey. All the other domestic animals of the American farms come of immigrant ancestry. They arrived first in this country when Spaniards and other adventurers brought live stock in ships to be sure of food and other supplies in a strange, new land.

* * * *

A monument has been erected to "The Unknown Dog" in the Procter Cemetery for animals at Nashua, New Hampshire. Of this monument, the *National Humane Review* says: "The idea was conceived in the mind of Mrs. G. H. Kendall, president of the New Hampshire Humane Society and it symbolizes all of the waifs of dogdom buried in nameless graves. The monument is of granite, inscribed "The Unknown Dog—Somebody's Pal Lies Buried Here."

Certain varieties of tomatoes contain 50 per cent more vitamin C than others, it is found.—*S. N. L.*, 29:785.

Palm, in 1890, reported the result of investigations concerning the prevalence of rickets in various Asiatic districts. He addressed letters of inquiry to missionaries in Manchuria, Mongolia, Peking, Tibet and elsewhere. The replies emphasized the poor dietary and sanitary conditions of the natives, the large amount of sunshine and the outdoor life. Rickets was said to be practically non-existent. From these and further investigations, Palm concluded that lack of sunshine was the main etiological factor in rickets. Hess says of this work, "It is remarkable that a statistical survey of this character, based on indirect and personal testimony, enabled Palm to make one of the most important deductions in regard to rickets that has been brought forward since its earliest description."—*Vitamin D Milk.*

In 1908 a severe epizootic, later determined to be a paralytic form of rabies, appeared among the horses, mules and cattle of Santa Catharina and neighboring districts of South Brazil. One thousand horses and mules and 4,000 cattle succumbed. The epizootic continued to spread; by 1911 it ravaged Sao Paulo and by 1931 had reached Venezuela on the North. Dogs and man are not affected, although by subdural inoculation, rabbits and sometimes dogs can be infected. In 1925 the epizootic reached the Island of Trinidad and here assumed and maintains a different form in that man is naturally infected. So far as is known, the sole vector of this paralytic form of rabies is the vampire bat. Infected bats appear quite well and remain infective up to five months. Their habits are markedly changed, however—whereas the normal hematophagous Chiroptera flies only at night and attacks by stealth, infected bats fly in the daytime and aggressively attack men and animals wherever found. Ordinarily anti-rabies vaccine is an effective prophylactic against this paralytic form of rabies.

The average farm flocks lay much better than in former years. A quarter century ago, a farmer thought he had a high record if his hens averaged 125 eggs per year, each. But today, 150 eggs per hen is not unusual, as a farm average. And in many well-managed commercial poultry plants, the standard is higher than that, with a minimum of 200 eggs a year for each hen. —*J. R. Mohler.*

U. S. INQUIRY SHOWS PRICE FIXING IN MEATS BY PACKERS

Culminating more than two years of investigation and extensive hearings, the Department of Agriculture has ordered 11 packing companies to desist from price fixing, apportioning of territory, and related practices in the merchandising of meats. Such procedures, according to an order signed March 31 by Henry A. Wallace, Secretary of Agriculture, are held to be illegal under the Packers and Stockyards Act, which the Department administers. The order became effective May 10.

By complaint, dated February 14, 1934, the Secretary of Agriculture charged that the packers violated portions of the Packers and Stockyards Act dealing with unfair, discriminatory, and deceptive practices.

A series of hearings, begun in May, 1934, resulted in the examination of about 900 witnesses and the recording of more than 24,000 pages of testimony before an examiner of the Department. The hearings lasted nearly a year. The Secretary's report and order, consisting of 176 pages, summarize the voluminous testimony and present the essential findings in the case.

The Secretary emphasizes that the order is not to be interpreted or construed as prohibiting differences in prices to persons and to localities, based upon differences in costs of distribution or other differences warranted in the exercise of sound, honest business judgment. It is intended only to prohibit discriminations between persons and localities based upon price-fixing agreements.

Bacteriologists have been hypnotized by the Bang's bacillus, which has concealed the true nature of infectious abortion from them.—*Raymond Moussu.*

EXTENT OF CHARLATANISM

It is estimated that, in England alone, the money spent in fees to quacks would endow 40,000 hospital beds. Quackery is undoubtedly "big business," and the quack knows how to sell his wares. Minor license holders in the United States are taught salesmanship in their training curriculum, and the power of the press is recognized and used to good purpose. There are 150 quack periodicals in Germany alone.—*Vet. Rec.*, 15:49.

HEALTH IN THE ARMY

The great progress that has been made in the prevention of sickness among the white enlisted personnel of the Regular Army since the Mexican War has been nothing short of phenomenal. Great and lasting credit for this work in reducing sickness in the military service belongs to the medical corps. For the white troops in the United States prior to the Mexican War, the death rate from diseases alone averaged 30.97 per 1,000 per year. Between the Mexican and Civil Wars, this death rate dropped to 22.74 per 1,000 per year, and from that time until the Spanish-American War the rate had dropped to 9.79 per 1,000 per year.

From the close of the Philippine Insurrection, about the beginning of the 20th century, to the World War, the death rate from diseases was 2.8 per 1,000 per year, and since the World War the rate has been reduced further to 2.19. Since the first period mentioned above, the death rate from diseases among the white enlisted men of the Army in the United States has declined 92.90 per cent. Applied to our present Regular Army this means the saving of the lives of nearly 5,500 soldiers annually that would be lost from disease if the health conditions obtaining 100 years ago prevailed now.

The average lifetime of a mule is longer than that of a horse—mules 18 years, horses 15.—*S. N. L.* 29:784.

In southern India where milled rice is a common staple of diet, still births and abortions (human) are three times greater than in northern India where whole wheat is generously consumed.—*Modern Medicine*, March, 1936.

The contributions to the undulant fever problem by the veterinary profession have been rich during recent years and are playing a predominant rôle in our (the medical) profession in the campaign against this redoubtable malady.—*Med. Times.*

Presumably pasteurization will render mastitis milk safe, no matter what germ it carries, at least in so far as it might be a means of conveying disease to the consumer. However, if consumers learn that pasteurization is employed to make mastitis milk safe, they would be led to conclude that much pasteurized milk is likely to contain milk from cows with diseased udders. This would put all pasteurized milk in bad repute, and be unfair to the distributor who is making an honest endeavor to supply milk of the highest nutritional and sanitary quality obtainable. Consequently it is advisable to exclude all mastitis milk from the supply for fluid consumption, in so far as this is possible.—*Illinois Health Messenger.*

MARGARINE LAW UPHELD

Constitutionality of the Georgia act taxing margarine containing other than certain fats and oils was recently upheld in superior court at Atlanta. The suit was brought by a distributor against the state secretary of agriculture. The Georgia law imposes a tax of 10 cents per lb. on manufacture or sale of margarine containing fats and oils other than oleo oil, stock or stearine, corn oil, soybean oil, cottonseed oil, neutral lard from hogs, peanut oil, pecan oil and milk fat.—*Nat'l Provisioner.*

Advertising any branch of medicine is undignified and unethical and would reduce that branch of medicine to a simple business organization like some of the cults, which at present are attempting to march under the banner of medicine. True medical science must stand or fall in the public esteem on the basis of its accomplishments and not on propaganda. A fine type of professional man is the best recommendation any profession can have in a community. —*C. H. Stange.*

* * * *

Being of constructive purpose and practices, veterinary medicine is not spectacular. It has unpretentiously, from the beginning of time, stabilized agriculture by the service it has rendered to the live stock industry. It is questionable if any profession, art or craft is of greater antiquity or has rendered more consistent and valuable service to humanity. No thoughtful person can subscribe to the proposition that our profession is of lowly origin, except as the origin of the entire human race may be so considered.—*N. F. Williams.*

* * * *

POULTRY INSPECTION

A city ordinance recently enacted in Chicago, prohibits the sale of canned poultry or canned poultry products within the city, unless it shall have been inspected and passed as fit for consumption as human food by the U. S. Department of Agriculture.

Inspection of dressed poultry is by the Bureau of Agricultural Economics and the service is utilized by most of the larger canners of poultry and poultry products. The inspection consists in examination by a qualified veterinarian of each poultry carcass at the time it is eviscerated to determine that it is healthy and otherwise fit for human food. All diseased or unfit poultry is denatured. This poultry inspection service meets the requirements of the Chicago ordinance. It is available to all poultry canners who are willing to pay the costs of the service and to make suitable arrangements for examinations.

Tests of canned pineapple juice showed it to be "a good source of vitamins A and B, a fair source of vitamin C, and to contain a measurable quantity of vitamin G." —*S. N. L.* 29:783.

* * * *

KUMYSS

The value of kumyss as a pleasant, nutrient, tart, effervescent beverage is not sufficiently appreciated. It is a form of milk which even meets admirably the objections sometimes urged against a precious food by idiosyncratic persons. Nutritionally, the calories of kumyss, according to McLester, run to 69 per 130 grams, or not much lower than that of whole milk itself.

The writings of Marco Polo show that kumyss was in use by the Tartars as early as the thirteenth century. In Russia and the East fresh milk is poured into smoked leather bottles to which is added a little sour cow's milk or old dry kumyss ferment. These skins are kept at a temperature about equal to the body heat and are frequently shaken for thorough mixing, and fermentation is allowed to proceed for three or four days. The percentage of alcohol will be governed by the length of fermentation and by the kind of milk used, mare's milk giving a higher percentage because of the greater sugar content (6 per cent).

In the lighter forms, as ordinarily made in home or hospital, some alcohol is developed from the milk sugar, which forms lactic acid and glucose, the latter making alcohol and carbonic acid. The alcohol may vary from slight strength up to 3%.

The National Formulary recommends the following formula for making *Lac Fermentatum,* or kumyss:

Take a quart of skim milk, one-fifth of a cake of yeast and two tablespoonfuls of sugar. Heat the milk. Dissolve the yeast in a little water and mix it with the sugar and lukewarm milk. Pour the mixture into small bottles, stopper them tightly with new corks, and tie down the corks with strong twine. Shake the bottles well and place in a refrigerator to ferment slowly. After three days lay the bottles on their sides, turning them occasionally. Five days are required to complete the fermentation. Dosage: 250 cc. (8 fluid ounces).

BETTER POULTRY INSPECTION NEEDED

The production of poultry for human consumption has been carried on for many years with little supervision and scant regulation. Federal meat inspection laws, hitherto, have not been concerned with poultry, and state and city health departments have paid little heed to the conditions under which poultry has been raised, transported, slaughtered and sold. Were these conditions better known to the general public, bearing as they do so directly upon the public health, radical changes, it is believed, would quickly ensue to safeguard one of our staple foods.

One who has been engaged in public health educational work and has investigated all stages of the poultry business from farm to market, avers that the raising and slaughter of poultry "violates every precept of sanitation and humanity."

In relation to sanitation it has been found that chickens commonly scratch and feed upon the fecal wastes of animals and humans which are recognized as a particularly malignant factor in disease transmission.

Pick-up trucks scour the countryside for chickens. Chickens have a long list of diseases —many poultry raisers cull out their sick chickens and sell them to these dealers. These chickens stand on shipping crate floors which become littered with fecal wastes. They may be shipped alive 2,000 miles, or, the very next day, one of them may be delivered at your own kitchen door.

Semi-scalding of poultry, which is widespread and increasing in the slaughtering process, multiplies the sanitary horrors. By this inhumane method fowls are thrust bleeding into hot water. The temperature is 125 degrees, just hot enough to start a chicken's feathers, but not hot enough to destroy disease germs. This water soon becomes a foul smelling solution of blood, chicken ordure and the powdered filth of dusting places. Not infrequently there are lice and the wastes of lice. The carcasses, after being defeathered, are dipped into a vat in which a lot of other filthy carcasses have been rinsed, then to the poultry market or direct to kitchens.

In the light of these facts it behooves the housewife and all other users of poultry to "check up" on this product and to reject the semi-scalded fowl. In one way at least they can do this by insisting on dry-picked fowls which have a light fuzz and fine hairs that easily can be singed off. Semi-scalded carcasses are smooth, bare and obviously have been wet.

A vast amount of hideous cruelty goes on behind the closed doors of unregulated, uninspected, poultry-slaughtering rooms. Many dealers believe that fowls are most easily defeathered if plucked or semi-scalded alive—also that the carcasses will retain more blood, thereby holding up the weights. It is extremely difficult, if not impossible, for a humane officer to get a conviction for such cruelty, because evidence is very hard to get and a police court or jury, persuaded by an able defense, is very hard to convince.

The recent federal act to regulate interstate commerce in livestock, which includes poultry, went into effect in Massachusetts last month. It purposes to prevent deceptive and fraudulent practices among live poultry dealers and handlers in the large centers of population. With adequate enforcement it should be able to prevent some of the long-standing abuses in the poultry industry. —*Our Dumb Animals.*

SIX BILLION POUNDS

Of what? Of meat sold to the people of the United States which for the most part has no proper inspection. That is, that one pound of meat in every three bought by the consumer in this country bears no stamp guaranteeing it absolutely fit for human food. What about the other two-thirds? That is under Federal Inspection which, it is said, is "recognized throughout the world as second to none."

But why is it possible for the six billion pounds to be sold without such inspection? Because the meat from any animal killed in any state and shipped outside that state must be inspected by the United States Government inspectors. But meat from animals slaughtered in any town or city of a state and to be sold within the state is supposed to be inspected by local inspectors. While there are local inspectors here and there who are competent and conscientious, for the most part local inspection is largely a farce. Over and over again for the last twenty-six years we have told the public of Massachusetts of the mere apology for inspection which characterizes the majority of the small local slaughtering-pens in the state. One does not need to know anything about what meat is fit for human food at such places. We have found painters, plumbers and boys under twenty-one acting as inspectors and putting the stamp on the carcass. The sanitary condition of many of these places is appalling. We have seen with our own eyes carcasses stamped as ready for market so diseased with tuberculosis that the pleural cavity had to be cut out and thrown away. There is no question that food animals are slaughtered in many of these miserable shambles, and their flesh sold to the poor, whose owners know well would never be passed by Federal inspectors but condemned and used for fertilizer.

We can only live in hope that the day will come when the public will demand state inspection equal to that the Government insists shall be given to meat that is subject to interstate traffic. It is said that one or two states like California have adopted laws based on the Federal statute which are being enforced.—*Our Dumb Animals,* April, 1936.

The more one experiments with the varied viruses among the different species of animals, the more one is persuaded that among the susceptible species, the pathogenic germ itself is of small import if it does not meet a receptive individual.—*Prof. J. Bassett.*

* * * *

It seems evident that *Br. abortus* is unable to cause diseases of the withers and the poll of the horse, except where it meets a fertile soil prepared from previously diseased tissue to allow its growth.—*R. Moussu.*

* * * *

Fear of animal diseases should not discourage people anywhere in this country from going ahead with every effort to improve their live stock. Enough has been learned about ways of preventing and controlling disease, so that the general disease siutation can be kept well in hand—if the owners of animals will only apply the knowledge that is available.—*J. R. Mohler.*

* * * *

A JACK-OF-ALL TRADES

What is probably the longest list of uses for any single product is cited in a recent Department of Commerce bulletin on glycerin, prepared by Dr. J. N. Taylor of that department. Among the products and processes mentioned under the heading "Uses" are:

Nitroglycerine and low freezing dynamite compositions, printers rollers, cosmetics, perfume preparations, rubber stamps, rubber stamp inks, copying inks, fancy toilet and liquid soaps, food preparations, confectionery and candy, fermented drinks, preservative and sweetening foods, flavoring and preserving tobacco, general solvent, litharage and other cements, shoe blackings, hats, preserving cork stoppers from molding, waterproofed paper, parchment, marbled and coated papers, increasing viscosity of liquids, antifreeze agent in automobile radiators, finishing leather, special lubricant, softening agent in artist's colors, extracting perfumes from flowers, pharmaceutical preparations, glycerophosphates, photographic emulsions, rubber substitutes, plastics, solvent in dyeing and printing textiles, size in making felt and in treating fabrics, demulcent, laxative, antiseptic, emollient, solvent and preservative in medicine.

Is there any other ingredient that can show such versatility?—*Glycerin Facts.*

New-born animals in the South are suffering most from the screw worm this spring. About 75 percent of all screw-worm cases in the southern part of the Gulf Coast and South Atlantic States—where this costly livestock insect pest is on the increase—involve the exposed cavities of very young stock. Most of such cases can be prevented by timing breeding to ensure births before the fly season. Young dropped when flies are prevalent can be protected by daily applications of dehydrated pine-tar oil around the cavities in which the adult screw worm flies lay their eggs. The only materials yet found of practical value in screw worm control are benzol, for killing the worms, and pine-tar oil for keeping the flies from laying eggs, as well as for hastening healing. Coal tars, creosotes, carbolic acid, and other substances that deepen wounds provide bigger breeding spots for the screw worm. Control early in the season, before the flies are out in very large numbers, greatly simplifies the screw worm problem later in the year.

* * * *

A knowledge of genetics has enabled breeders to develop the polled breeds of cattle. Horns are a valuable aid to feral cattle in self preservation, but the day when cattle need their horns for attack and defense is past. In the service of man, the horns are merely a nuisance, and dehorning cattle has become a common practice. Of course, the polled breeds do not require this operation.

* * * *

TICK AREA DWINDLES; LAST CUT IN FLORIDA

The cattle fever tick area in the United States has been cut down in less than 30 years to less than 9% of the area that was infested with the tick when the Department of Agriculture started to drive it out of the country. On July 1, 1906, when eradication work began, nearly 730,000 square miles in 15 States was under Federal quarantine because of the tick. Now only 62,000 square miles remains under guarantine—in Florida, Louisiana, and Texas.

Maybe the Plan is Wrong—

THE present anemic state of the farm press equally with its moribund appearance during the depths of the depression must be of concern to all interested in agriculture and that, of course, includes veterinarians. One has to but contrast the plethoric weekly, *Breeders' Gazette,* of 25 years ago with its monthly descendant; the powerful *Hoard's Dairyman* under the regime of Governor Hoard with its struggling successor; *The Prairie Farmer* of a score of years ago with the same publication of today, to realize that something has profoundly affected agricultural publications in prestige, influence, circulation, advertising and income and that the result has been deterioration, decline, decay, and in less favored instances, dissolution.

All along it seems the germ of its own destruction has been nurtured in the policies of the farm press. Agriculture is still to be served and the guidance and instruction the farm press is in a position to furnish was never more needed by farmers. *The Prairie Farmer,* for example, was a great magazine when wheat was harvested on the prairies with a cradle and corn was planted with a hoe, and literacy on the land was probably not much above 50%. Why should it and all the others have waned as the field waxed?

When the agricultural experiment stations struck their stride soon after the turn of the century, the agricultural press went in for scientific farming in a big way. That is, in production. All the developments of science that would increase production in field, orchard, barn and feed lot were heralded in its pages. The farmer was told the advantages of better grains, better fruits, better cows, better sires, better swine, and in time, of improved farm machinery and improved methods.

Simultaneously with this adoption of the teachings of science in matters of farm production, this same press changed from advocacy of the empirical and unscientific in disease control and adopted instead an anti-scientific attitude. As the veterinary practice laws enacted by many states in the '80's and '90's and later began to lessen the number of empiric veterinary practitioners and their places were being taken during the first decade of the present century by scientifically trained veterinarians, the farm press, as a unit, adopted an intensely antagonistic attitude to scientific veterinary medicine. They opposed the tuberculin test with every unsound argument ingenuity could devise, and every trumped up charge malignancy could invent. When foot-and-mouth disease was rampant, they used their columns unsparingly to incite opposition to eradication measures and demanded, in season and out, that a "practical stockman" be made chief of the Federal Bureau of Animal Industry. When the Bureau placed its four state demonstrations of the use of anti-hog cholera serum in the hands of its veterinarians, they proclaimed it a diabolical conspiracy against the swine owner. They abstracted or republished everything that belched from the maw of the experiment stations on the home treatment of animals. They ran veterinary departments for the sole purpose of encouraging the owner of animals to attempt the diagnosis and treatment of their every ailment. Their advertising pages teemed with announcements of every quack remedy known, all describing in alluring phrases the simplicity of diagnosis and the certainty of panaceas. No other agency has so insisted upon the county agent dabbling in veterinary medicine as has the farm press.

Agricultural production increased amazingly. The production of hens and cows was increased 100%. Swine were made ready for market in six months, instead of a year, and steers in a year instead of three. But what of disease control? No one can say. No one knows what was the loss from disease 25 years ago, or knows what it is

now. Glanders has been rendered unimportant; bovine tuberculosis has been reduced amazingly; hog cholera, blackleg, anthrax and rabies prophylactics have been developed or improved, and several efficient prophylactics have been discovered for poultry diseases—but to what end? Has the loss from those diseases been lessened? There are no statistics to prove or disprove it, but much evidence to indicate it has increased twice as fast as has production during the past 25 years. With all the improvements that have come about in breeds and types of live stock the producers are still balancing on the brink of bankruptcy. Disease has become, as never before, the principal limiting factor in animal production. It is now the chief obstacle to a profitable agriculture. This can have no other explanation than that the every-man-his-own-animal-doctor plan has failed. The agricultural press must bear a heavy responsibility for this failure and has suffered from it.

AN EDITORIAL in a recent issue of the *Farmers Home Journal* (Louisville, Ky.), is illustrative of the advice to treat their own animals farm papers have been giving readers for a generation. It carries an acknowledgment of its failure —the statement that the loss from disease is increasing. Yet it appears never to have occurred to the editor or to other farm paper editors, that, in view of the continued failure of the veterinary service of his own supplying, possibly what the live stock raiser needs to halt his increasing loss from animal disease is a better veterinary service than he himself *can* provide. When the average productive life of a dairy cow is less than five years; when 40% of the laying flock succumbs to disease before the end of the first laying period; when hog cholera costs $500,000 per million swine in the United States, where it is under lay control, and only $175 per million in Canada, where it is under professional control; and when it is suddenly discovered that 40 to 50% of our cattle herds are infected with Bang's disease, and as high a percentage of our cows infected with mastitis organisms, it doesn't take a Sherlock Holmes to deduce that something is wrong, nor particularly brilliant reasoning to fasten the blame upon the non-professional veterinary service that has been the vogue in this country much too long.

The Kentucky editorial follows:

CONTROL OF LIVESTOCK DISEASE

The problem of disease prevention gains more importance with the increasing value of livestock. Disease seems to spread more rapidly as prices rise. This might be explained by the fact that there is more trading and traffic in livestock on a rising market than is customary under lower price levels. Handling and transportation of livestock tends to lower the normal resistance of animals against disease, and results in the spreading of infection over widespread areas. Sudden changes of temperature and floods, such as we have just experienced in the past season are also factors in causing disease. It must be remembered, however, that the most vicious and dangerous diseases may strike at any time, without respect for season or conditions unless properly protected.

The Kentucky livestock raisers and feeders have suffered more than their share of losses from epidemic and disease infections during the past year. In many sections the losses have been disastrous. Probably chief, and most deadly of these diseases have been Hog Cholera and Black Leg. Treatment of these cases is for the most part hopeless after symptoms have appeared, and death is almost invariably the result. Strange as it may seem, these two, Hog Cholera and Blackleg, although the most dangerous and fatal of all livestock diseases, may both be easily prevented by vaccination.

The Serum-Virus treatment offers almost 100% protection against Hog Cholera. Vaccinated as pigs, they may be considered safely immuned for life. Blackleg Vaccines are generally accepted as being the most perfect of all animal vaccines. Calves given a single injection at weaning time will have a lifetime protection.

Any farmer can vaccinate his own livestock very cheaply and safely. Simple directions are furnished by reliable serum people.

Every livestock raiser or feeder should acquaint himself with the simple rules of disease prevention. Bulletins are issued by the State Universities, and The United States Department of Agriculture. Valuable and instructive information may also be obtained free of charge by writing reliable producers of animal vaccines. Firsthand knowledge of the most common livestock disease, methods of prevention and control may be the means of preventing serious disease losses in animals that are becoming more valuable each day.

ONE WONDERS if it has ever occurred to Editor Spencer that just possibly it is not true that "any farmer can vaccinate his own live stock very cheaply and safely," and that the rules of disease prevention are not so "simple" as he supposes. In a little more than a generation, about 1,100 veterinary bulletins have been issued by the U. S. Department of Agriculture and state agricultural experiment stations, with the purpose of teaching the live stock owner to handle his own veterinary problems. Their combined distribution has surely exceeded a million. In the same period, the agricultural press has distributed hundreds of millions of copies of similar instructions. Result: the loss of domestic animals from disease and parasitisms has increased steadily throughout this period and now certainly exceeds in value a billion dollars annually; how much it exceeds that figure nobody knows, or is qualified even to guess. Could there be better evidence that non-professional veterinary service has failed? Isn't it time to try something else? A professional veterinary service has never been given a general trial in this country. It might be tried. It has been tried in foot-and-mouth disease, and it worked; in dourine, and it worked; in glanders, and it worked. In tick fever, although immeasurably handicapped and delayed by political influence, a professional veterinary service is achieving success; in tuberculosis its achievements have been outstanding. The professional veterinary service of this country has not failed in a single animal disease control project that has been given to it to handle. The non-professional veterinary service has not succeeded in eradicating or controlling or lessening the prevalence of a single animal disease in this country, yet the agricultural press continues to support the failure and oppose the successful.

We think, on the whole, the popular veterinary bulletins issued by the agricultural experiment stations have been detrimental to animal husbandry in this country. They have supported a policy that costs the owners of animals too much and gives them too little. But the agricultural press has been far more effective in promulgating the every-man-his-own-veterinarian idea. They have furnished not only advice and instruction, but the means for carrying it out, something the experiment stations seldom do. For example, by way of illustrating the editorial quoted above, the editor of the *Farmers Home Journal* runs two advertisements in an adjoining column. One of the advertisements leads off with: "Vaccinate 'em yourself and be safe and saving. Buy Anchor Serums and Vaccines," and ends with, "Send for free copy of our new book, "Vaccination Simplified," also latest price list of all products." The other advertisement urges farmers to "Vaccinate your own horses and mules with Peters influenza mixed bacterin . . . Only 10c a dose . . . Horse bot capsules, large size, 35c; small size, 25c."

Some evilly-disposed individuals might think that the advertisements were the inspiration and the reason for the editorial, so perfectly does it tie-in with them.

* * * *

IMPORTANCE OF NUTRITION

All that has been said is an indication of the tremendous place that the scientific study of food has assumed in relationship to health and disease. Whereas 20 years ago the medical profession was primarily concerned with the use of medicinal substances in the control of disease, it is certain that today the chemical, physical, physiologic, and nutritional study of foods occupies a place at least equal in importance if not more important. The literature on the subject, even if it be limited to what has been printed in the last decade, is vast and stimulating. Certainly the time may come when, through our knowledge of the relationship of foods to growth and health generally, we may produce bigger and better human beings than is possible today, human beings with a more powerful structure and far better equipped to resist disease.—*Morris Fishbein, M.D., Editor, Journal of the American Medical Association.*

Honor Two Great Veterinarians*

By L. A. MERILLAT,
Chicago, Illinois

IN THE march of learned professions there are events, seemingly of local interest only, which have world-wide significance. To the world of veterinary science one of these events occurred on January 16, 1936, when a large audience overflowing with distinguished men, gathered at the *Maison des Vétérinaires,* 28 rue des Petits-Hotels in Paris, to pay homage to two members of the veterinary profession, MM. G. Ramon, under-director and C. Guérin, chief of service, of the famous Pasteur Institute of France.

The ceremony was sponsored by the *Syndical National des Vétérinaires,* whose president, after delivering a masterly address on the life and work of these two eminent figures, presented each of them with a great bronze medallion of his own effigy, handicraft of the talented sculptor, J. Darras. At this touching celebration almost every branch of science and all governmental departments were officially represented: Medicine (human, comparative, animal), education, public health, public safety, military, labor, natural history, agriculture, animal production, not to mention important subdivisions of these. Among those who participated, one finds such well known names as Martel, Martin, Nicholas, Lesbasque, Levaditi, Leclainche, Blaizot, Lémetayer, Drouin, Barrier, Verge, Lesbouyriés, Breton, Césari, Noë, Fiessinger, LaFont and other figures of the literature and public service. The latter, minister of public health, presided. The occasion was the dedication ceremony of the *Maison des Vétérinaires* (veterinarians' home), at the address mentioned above. Of the occasion, President Clavet of the *Syndical National des Vétérinaires,* said in the presentation speech: "We write today on its *Livre d'Or* the most brilliant page possible. Others who follow may possibly equal it, but none can surpass it in splendor." Minister LaFont extended the felicitations and gratitude of the French government to the honored guests. President Bridre of the *Société de Pathologie Comparée* complimented the founders of his organization for the foresight of uniting physicians and veterinarians in a unique plan of work. Drouin, successor to Leclainche as chief of the veterinary service of France, attributed the greatness of Ramon and Guérin in the strict discipline of the Alfort school where they had close contact with animal production and thereby, through laborious study of biological sciences, acquired their thirst and aptitude for experimental medicine and research. Fiessinger, minister of education, in the name of public education, thanked the recipients for their contributions to the "prophylaxis of infectious diseases of mankind," and pronounced them "spiritual sons of Pasteur." Professor G. Barrier, speaking for the *Académie de Médecine,* mentioned that Ramon and Guérin were among its distinguished members and co-workers and that the academy adds its admiration for their "fine researches and great service rendered in the domains of prophylaxis in animal production and public health," and complimented the veterinary profession for having furnished posterity men who have so strikingly uplifted veterinary science throughout the world.

THE response of Ramon was a touching tribute to the modesty of great men. "Frankly," said he, "my first thought was to decline this honor as undeserved, since, truthfully, I am not entitled to this homage. The credit belongs to my parents. Being of humble origin, they endowed me with a precious heritage; the taste for work. At this hour, as always, they continue to set the example of labor." Continuing on this vein, he credits everything to his associates: Nocard, Barrier, Roux, Calmette, Vaillard, Yersin, Martin, Chaillou, Adams, Monvoisin. "Work, work

* Excerpt from *Revue Vétérinaire et Journal de Médecine Vétérinaire,* Vol. 88, April, 1936, pp. 216-39.

only work, counts," was the inspiration. "Why the personal homage from sympathetic colleagues which must, in all fairness, be allocated to my parents, my family, my teachers, my collaborators who have helped me right up to the hour of this manifestation. But, as you have selected me among them to receive this blessing, I thank you from the bottom of my heart." The address is replete with facts characterizing the life and work of Bouley, Chauveau, Colin, Toussaint, Nocard, who laid the foundation of scientific veterinary medicine of Occidental civilization.

Reproduction of the Bronze Plaques Presented to MM. Ramon and Guerin

Camille Guérin, whom we know best for his work with Calmette on BCG, likewise gave credit to the technical education and inspirations of Alfort for "his modest contributions." For him, much credit goes to Nocard, first occupant of a chair on contagious diseases of animals, who lived through the "heroic days of anthrax vaccination at Pouilly-le-Fort" when Pasteur found an admirable worker without bourn in Veterinarian Rossignol who, with Nocard, adopted enthusiastically the new technique of experimental medicine, created at Alfort the instructions on microbian diseases of animals, and established bases for their pathogenesis. Nocard had a keen vision of the immense field of study that veterinary medicine afforded and such a persuasive conviction of its future achievements that he now appears as a teacher who had already been crowned with glory. The collaborations of Roux and Nocard carried out in an atmosphere of personal confidence and friendship, were simple, intimate and fruitful. At the tomb of Nocard, Roux solemnly declared that "In the parting of Nocard, I seem to have lost all reason for living."

IT is significant current history that Guérin, in 1896, went from Alfort to assist the late, lamented Calmette, who had just founded the Pasteur Institute of Lille, the first affiliate of the metropolitan institute of Paris.

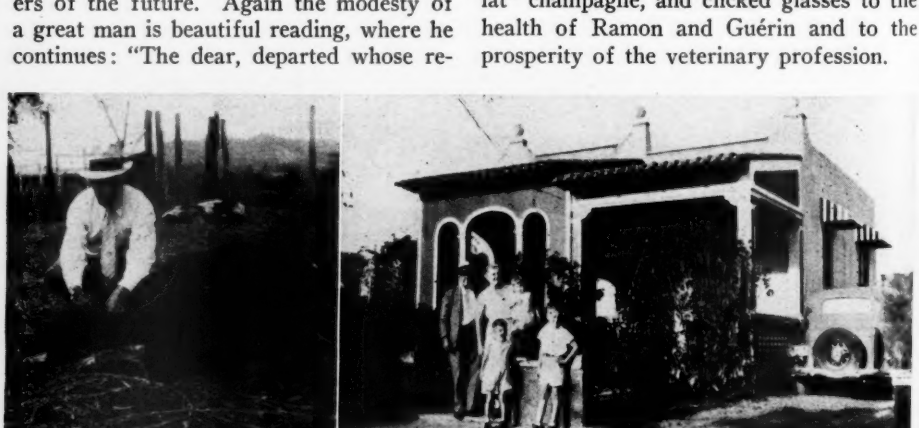
Pasteur, himself, one should add in passing, was first accepted in the domain of medicine by the veterinary societies of France, while human medicine was either unmoved, or hostile to his projects. Of his selection for an important post at the research institute at Lille, Guérin said: "I was recompensed beyond my merits in seeing the name of a modest veterinarian associated with that prodigious figure of medicine." Chemist Pasteur, unspoiled by

the antiquated doctrines of human medicine, (consecrated through the centuries), in seizing the opportunity veterinary medicine held out for the succor of mankind, set an example the medical profession of this hour might well emulate with greater ardor. The revolutionary attitude of Pasteur marks the beginning of the era when animal medicine began to climb slowly toward the objective it has yet to attain. To him and his disciples veterinary medicine has been an indispensable stepping stone in the climb of medical science, which, let none forget, was impolitely sidestepped by the descendant disciples of Hippocrates, since the fourth century before the Christian Era.

THE association of Calmette and Guérin at Lille was fruitful. It led to the discovery of antivenom serum, to the doctrine of premunition and to the unassailable efficacy of veterinary-medical cooperation in the progress of medicine. But, says Guérin, in effect, why should any one man even in the autumn of his life, receive such expressions of gratitude when, as a matter of fact, scientific workers should remain anonymous. They only take up the work of precedessors and pass it on to the workers of the future. Again the modesty of a great man is beautiful reading, where he continues: "The dear, departed whose remains repose peacefully in the calm of nature at Jouy-en-Josas, impels me to render unto him that which is due; the homage of his devoted disciple and the gratitude you extend because of his high esteem for the veterinary group and the richness of the results he awaited from the collaboration of the two medicines."

LaFont, minister of public health, amusingly complimented the sponsors for having the foresight to eulogize the living: "It is easier to celebrate those who are dead. . . . One can risk pointing out their failings now that everybody wonders why there is not immediately discovered a vaccine for every illness. . . . In this respect there is a profound psychological trait." In a more serious mood, the speaker pointed out the importance of working in common, of the spirit of the "scientific family" existing among the Pasteurians, to which the veterinarians belong, and who work, live and celebrate together for the general good of humanity.

On adjourning to the room of the president of the *Syndical des Vétérinaires,* everyone signed the *Livre d'Or* of the *Maison des Vétérinaries,* imbibed "Gourgelat" champagne, and clicked glasses to the health of Ramon and Guérin and to the prosperity of the veterinary profession.



Dr. G. A. Roberts, Director de Sanidad Pecuaria of the Republica Dominicana (Santa Domingo), examining calves suffering from "Bovera," a complicated affection characterized by enteritis and pneumonia. It is common in calves on the island from three weeks to four months of age. Some herds lose 50% of their calves between November and April from this ailment. Right: Doctor Roberts and family and his official residence.

Hawaiian Practice

By A. R. GLAISYER,
Kalaheo, Kauai, H. T.

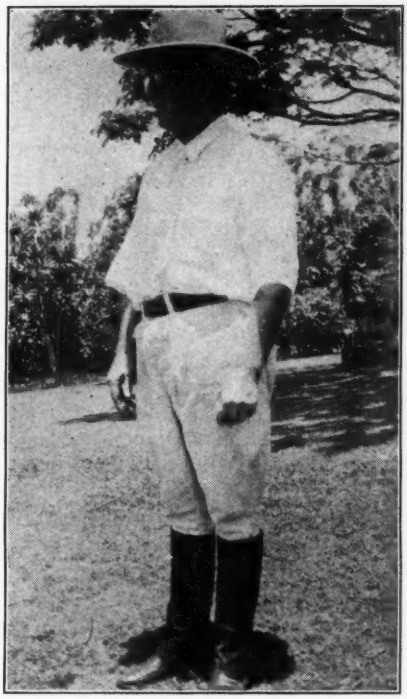
LAST year I journeyed across the southern half of the mainland of the United States, in a zig-zag route from the Pacific to the Atlantic Coast and on to New England; thence returning through the northern tier of States to Seattle, and down to San Francisco where I first landed. From there I went to Oklahoma City to attend the A. V. M. A. meeting, and then returned to the Islands.

Many friends that I met while in the States, asked me why a veterinarian should be located on a tiny island in Mid-Pacific, a hundred odd miles northwest of Honolulu. I shall attempt to answer those questions. To begin with, there is not one, but two veterinarians on the Island of Kauai, which nicely divides itself geographically so that each of us have a number of sugar plantations, ranches and dairies.

Our practices are not of the type conducted in the States. In some respects it represents the contract practice that used to be common in the larger cities. We are employes of the various plantations, that also own the ranches and dairies. Other practice than this, there is none, except an occasional dog, which is usually treated free, as was commonly the case in the large equine practices of the cities in the '90's.

Our principal work is the treatment, care, feeding and stable management of the mules and horses used on the sugar plantations in the lower lands, and on the ranches toward the mountains. The dairies are maintained chiefly by the plantations to insure a milk supply for employes. The plantations usually have from 120 to 250 draft mules and horses, and from 70 to 120 saddle horses. Each plantation has from four to eight stables, situated at strategic points and for each stable there is a Jap or Portugese *luna* (overseer), more or less competent, usually incompetent.

My duty is to visit these stables regularly, watch the feeding and treat the sick and



THE AUTHOR

disabled. In addition, there are my duties as deputy territorial veterinarian, which include tuberculin testing, hog cholera control and vaccination for the prevention of anthrax. There is no blackleg on the Islands and glanders was stamped out 30 years ago. Hog cholera is prevalent.

On the whole, the work is much the same, week in and week out, and most of it is routine. The following duties performed during the week beginning January 11th, are indicative of what goes on the year round.

SATURDAYS I make no routine calls. I like to do any government work that may be necessary and to tend to my mail. On this Saturday, I had planned to get a pheasant or two in the afternoon, but received a call from a sugar company, 16 miles distant, the Jap *luna* stating that a $1500 Kentucky saddle horse had "opu pilikia"; that means almost any kind of

abdominal pain. He was right. The stallion was in plenty of trouble and vicious besides. The stomach was washed out after putting the patient in stocks, and a dose of Cannabis Americana, aromatic spirits of bitters, tincture of capsicum and turpentine, given together with one and one-half pounds of Glauber salts. The animal was much better in an hour, and at 10 P. M., I returned, found him better and repeated the medication, except for the Glauber salts. Seen again at 6 A. M., Sunday morning, the stallion was doing fine and I told the Jap to give him all the *pua lilii* he would eat. This is an aromatic weed that grows wild on fallow lands. Horses and mules are passionately fond of it. Fluid extract of nux vomica in appropriate doses was also prescribed for administration three times daily.

Fifteen-hundred-dollar stallions are rare here, and having a healthy respect for my bread and butter and other concomitants of living, I was back to see this one at 1:00 P. M. "Stallion polole," said the Jap; that is, o.k.

Monday, January 13th: Fired, blistered and turned out to pasture two saddle horses with sprained suspensory ligaments, at the same plantation. Opened and drained a foot abscess caused by glue thorn. This glue is a very hard thorn, about an inch long, and penetrates like a nail, they are hard to find and remove until the animal gets quite lame. I injected some iodine and put on a hot Antiphlogistine pack, making it thick. This is changed every day and between changes, the foot is soaked for an hour in a hot, antiseptic solution. There is lots of tetanus here and an injection of antitoxin is routine for every wound, saddle sore, collar sore, etc. I used to have 20 cases a year of tetanus; now I have none.

Gave worm and bot treatment to 55 mules on another plantation. This is routine twice a year for all horses and mules on the Islands. Bots do not have the same life cycle here as they do in the States, and we must fight them twice a year. I do not use capsules, but give the treatment through the stomach tube. I have well-trained help and my record is 22 mules in an hour and two minutes. It took me two hours and 38 minutes to dose these 55 mules. The six-dram dose usually recommended is not enough here. I use an ounce. The carbondisulphide is poured into the tube and washed down by one-half pound of Glauber salts in solution. Possibly the use of capsules is a better way but I get the bots and the worms and I don't have any trouble from broken capsules.

At the next plantation I treated one lame horse, and gave the Philippine stable man the devil for moldy feed boxes, turning his name in to the overseer for discharge. Dressed a cankered sole and two cases of bursattee (we can't wait for frost to cure these cases for us). Destroyed three old mules and one horse.

Tuesday, January 14th: Spayed 30 heifers on the G & R ranch and on to the K plantation, where they have a *haole* (white) *luna* and things are easier.. Found a mule wounded in the haunch, a wound large enough to put your head in. There is lots of portable, rail track used in the fields. The rails extend beyond the ends of the flat cars, on which they are hauled. In some way, this car got away and on a downgrade, hit this mule, giving him an enforced vacation of a couple of months. Two lame ones here. Nothing interesting. Noticed a couple of teams that had not been clipped; reported it. Arranged to castrate 10 colts next week.

The next stop was at the M. sugar company. They need some new saddle horses. The manager directed me to buy a half dozen for them. This will probably give me a trip to Honolulu. Vaccinated a dozen pigs for a Jap living in the stable camp.

Wednesday, January 15th: No routine calls necessary. At W. dairy injected 132 animals for the tuberculin test (territorial work). We do not inject in the caudal fold. The late lamented Norgaard instituted the procedure of making the injection intrapalpebrally. We think we get a better reaction when the injection is so made, and one easier to read. Anyway, we like it.

This is an unlucky day. Three dogs were

brought to my house, two with broken legs, the other with a displaced Harder's gland. While in the States, I boasted that I was a veterinarian and not a dog practitioner. I wish now I had paid more attention to the small animal clinics. All three dogs bit me. Fortunately, there is no rabies in the Islands. I treated the animals and sent them home, hoping they would do all right. There was no money in it for me.

About 101% of the pointers and fox terriers here have heart worm infestation. They only last from two to four years. Coarse haired dogs do better. Airedales, wires and Scotties are hardly ever affected. I am using Fuadin now. Some dogs react severely. I tell my clients to say farewell to their dogs when I start treating them; then if they go home cured, they are well pleased, and if they don't, it is no more than they expected, and they know they would have died anyhow without treatment. I am treating two at the present time for filariasis.

Thursday, January 16th: Back to the K. plantation. The stallion was placed on a regular diet and treatment discontinued. While I was there a mare got into a cattle guard and was badly lacerated. I think she will not recover. Opened a shoulder abscess; stitched a torn eyelid. The drop in the price of barley will enable me to change the ration and save $75 per month at this plantation.

At H. sugar company I took 30 samples of blood to be sent to Honolulu for the agglutination test for Bang's disease. While there, was directed by the manager to buy 12 saddle horses, two cows and three Hampshire pigs. Vaccinated 20 shotes belonging to the plantation. Dressed a mule's mouth and treated a foundered saddle horse.

Friday, January 17th: At the K. plantation again this morning. Gave anthelmintic treatment to 20 mules and five horses. Treated a Hereford bull for actinomycosis. A saddle horse could not eat; cause—a two-and-one-half inch piece of sugar cane wedged crosswise between the fifth upper molars. Rather difficult to remove.

At the M. B. ranch I fired a mule; opened a foot abscess; injected four cows for the tuberculin test, and treated a gash six inches long and four inches deep that a crazy Porto Rican had made, with a cane knife, in the haunch of a mule.

Saturday, January 18th: Checked the tuberculin test at the W. dairy. I got one reactor; also three pheasants in the afternoon.

IT WILL be noted that I have not mentioned quittor, fistula or poll-evil. I have practiced here 27 years and have not seen a case nor have I seen a case of periodic ophthalmia in the Islands. There is lots of ringbone and a few spavins, and lots of forage poisoning. There are certain pastures that I watch and if a hard rain comes during the hot, dry, summer months, I get the horses out of it quickly; otherwise I am sure to lose some from mold poisoning.

Our colics are mostly impactions. A particularly nasty one is caused by the seed of the algarova bean; another by the seed of the guava. The latter is not so common, as most horses do not eat the fruit. The former is a valuable food. When used in moderation, horses grow fat on it; cattle too.

I use gallons of magnesium sulphate solution in these cases and brace them up with nux vomica and aromatic spirits, along with high enemas and massage and that sort of thing.

P. W. Browning of San Jose, California, was territorial veterinarian here a few years ago. The way he could spay cattle was startling. At the same time, a veterinarian showed up from Russia, very, very scientific. He took three and one-half hours to castrate three colts; did a thoroughly aseptic job. He watched Browning spay heifers at the rate of 200 odd a day and kept track of them for a couple of weeks. Asked what he thought about it, he said: "Zee results are w-o-n-derful, but zee techn-e-ek, it is r-r-r-rotten."

Poor fellow, he died of anthrax a few weeks later.

A Field Technique for the Hayden Chloride Test

By GLENN C. HOLM,
Department of Veterinary Hygiene,
Iowa State College, Ames, Iowa

Introduction

MANY tests have been developed as an aid in detecting mastitis, a very few of which are adaptable to field use. Unfortunately most of the tests that can be employed in veterinary practice either lack sensitivity or tend to be time consuming. Hayden (1) developed a chloride test for mastitis which the author has employed in the laboratory and field since 1932. Hayden gives the procedures for three methods, the latter of which tends to adapt itself for field conditions. A technique will be discussed which has proved an aid in the detection of mastitis in the field.

Historical

Chloride tests have been used in detecting mastitis for many years. Guillebeau and Hess (2) as early as 1891 reported the use of a chloride test. Hammer and Bailey (3) developed a method for quantitative determination of chlorine in milk. Holm (4) (5) using the Husband and Godden (6) modification of Austin and Van Slyke (7) found that normal milk contained less than 0.14% chlorides while mastitis milk usually contained more than 0.14%. This finding compares favorably with the results of Rosell (8) and Hayden (1). Holm (5) also compared the Hayden method with the method of Husband and Godden. Drost (9) reported two methods for chloride determinations in milk. He concluded that milk containing more than 0.12% chlorides is abnormal.

Technique

A. Materials needed:

1. *Reagents*: (a) Silver nitrate solution. This solution is made by adding exactly 1.3415 grams of silver nitrate C.P. to one liter of distilled water. This solution is stable if kept tightly stoppered in brown bottles. The local pharmacist probably has a balance sensitive enough to compound this solution, if not, any pharmaceutical house can supply the solution. (b) Potassium chromate solution. This is a 10% solution in distilled water.

2. *Sampling containers*: Two convenient samplers are: (1) a wooden block with four drilled holes for inserting large mouthed test tubes and (2) a metal strip cup having four compartments and a hinged lid. The lid frame should be covered with fine wire screen. (100-120 mesh.) These containers are compact and make it practically impossible for the attendant to interchange quarter samples, Fig. 1.

3. *Test tubes and Test tube rack*: The test tube should have a capacity of 6.5-7.0 cc. A very convenient tube for this work is an agglutination tube with an inside measurement of 1 by 10 cm. The test tube rack may be made in a tin or woodshop. The rack should be arranged for two rows of tubes. The rack or block can then be marked off in groups of four, Fig. 2.

4. *Syringe pipettes*: The Vernes (rheometer) syringe pipette* is an automatic filling syringe which can be adjusted to deliver exactly the amount desired. Two pipettes are needed, one which delivers exactly 1cc and one which delivers exactly 5cc. Glass pipettes may be used but the difficulty with this type of pipette in the field is the breakage. They are also difficult to clean between tests thus necessitating a pipette for each individual test. Glass pipettes require close attention in measuring the silver nitrate and the milk while the syringe pipette loads automatically, Figs. 2 and 3.

5. *Containers for rinsing pipettes*: Containers are required for rinsing the syringe pipettes. Two small enamel ware basins fulfill this requirement satisfactorily.

6. *Buckets* or *pans*: Buckets are needed

* Arthur H. Thomas Company, Philadelphia, Pa.

for rinsing the sampling containers.

B. Procedure:

The test should be performed just prior to or during the regular milking. All mastitis tests whether laboratory or field should be carried out on individual quarters.

The testing apparatus should be set up in a place near to the cows and yet arranged so that sufficient light is available.

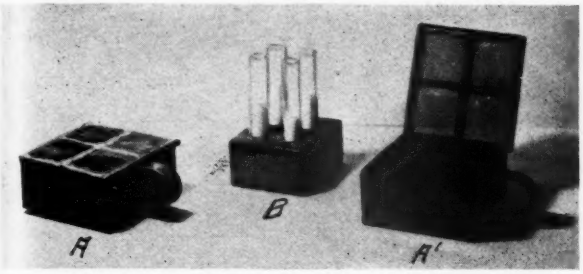


Fig. 1—A and A¹. The strip cup type and B. The wooden block type of sampling containers.

The milker should discard the first streams of milk in a waste bucket. Samples of milk from each of the quarters should then be taken in the sampling container.

The test is as follows: (1) With a syringe pipette place exactly 5cc of silver nitrate solution in each of the four test tubes. (2) To each of the tubes add two drops of 10% potassium chromate. (3) Using the 1cc syringe pipette, place exactly 1cc of well-mixed milk in an appropriate tube. (4) Mix the milk, silver nitrate and potassium chromate by inverting the tube. (5) Note the time and repeat the procedure for other quarter samples, after rinsing the 1cc syringe pipette with distilled water.

The color change is sometimes very rapid; changing from brown to a brilliant yellow while the sample is being mixed. The author has noted that the time required for the color change is dependent upon the amount of chlorides present which in turn is usually correlated with the severity of the infection.

A convenient key for recording the results is as follows:

Tests in which the color change from brown to yellow is immediate, +++; tests giving the above color change in one half minute, ++.

Tests giving the above color change but which require up to one minute, +; tests showing some color change, S (suspected) and tests showing no yellow tinge, — (negative).

Discussion

The chloride test described above was found to be far more sensitive than any other single field method. Rosell and Miller (10) compared several methods and found that their chloride test was 82.8% effective in detecting abnormal quarters while the brom-thymol-blue test detected only 30% and the black cloth method detected only 6% Stableforth (11) found that brom-cresol-purple was not as good an indicator of mastitis milk as was brom-thymol-blue. He came to the conclusion, as have many others, that in using either the brom-thymol-blue or brom-cresol-purple a het of standards are necessary. Stableforth states that the standards

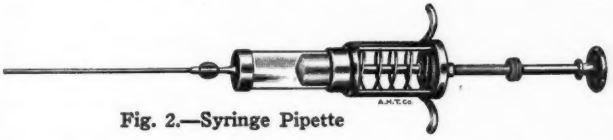


Fig. 2.—Syringe Pipette

should be made of certified milk with alkali added to give the various hydrogen ion concentrations. He states further that standards must be employed for the various butterfat contents.

From the above findings it would appear that the brom-thymol-blue test, if used accurately would be cumbersome in the field. Gloy and Bischoff (12) found that by using the Thybromol (brom-thymol-blue) test in conjunction with electrometric titrations they could detect 75% of the abnormal quarters.

The chloride test has a distinct advantage over any other color test due to its striking

color change. The color changes are easy for the majority to interpret because of the range in brilliant color production.

The rennet test recommended by Hadley (13) possibly has a place in mastitis detection. However, Hill (14) as early as 1923 showed that some cows which were absolutely normal produced soft curd milk.

Fig. 3.—A. The strip cup type sampling container, B and B¹. The 1 cc and 5 cc syringe pipettes, C. Metal test tube rack with test tubes, D. Dropper bottle with 10% potassium chromate and E. Dark bottle with silver nitrate.

Hansen *et al* (15) reported that while most cows with streptococcic mastitis produce soft curd milk, other cows with staphylococcic mastitis produce milk with a normal curd tension.

The use of a single method for detecting mastitis often leads the diagnostician astray. The use of the chloride test in conjunction with palpation will reduce the possibility of error to a minimum. Occasionally a case of chronic mastitis is encountered in which the foci of infection is temporarily walled off or the infection may be quiescent at the time of testing. A chloride test on such a subject is often negative or suspected only but with the aid of udder palpation the condition is usually detected.

Acknowledgement

The author is indebted to Miss Margaret W. Sloss and Prof. E. A. Benbrook for the photographs from which the illustrations in the foregoing were made.

Summary

A field technic for the Hayden chloride test is described.

Some of the more common field tests are discussed.

Zusammenfassung

Eine Anweisung für die Ausführung der Hayden Chloride Probe in der Praxis ist beschrieben. Andere praktische Methoden werden erörtert.

Resumé

Une technique de l'épreuve d'Hayden, applicable dans la pratique est décrit. Des autres épreuves practicables sont examinées.

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PEET'S PROTECTION POWDER AN INTENTIONAL FAKE

Ernest M. Peet and the E. M. Peet Manufacturing Co., Council Bluffs, Iowa, were fined $200 each in Federal Court following conviction on charges of violating the Federal Food and Drugs Act. Peet was charged with having made a shipment of misbranded "Peet Protection Powder" from Council Bluffs, Iowa to Grand Island, Neb., contrary to Federal law. Government chemists showed the powder was a mixture of Glauber's salt, baking soda, charcoal, sulphur, chalk, wormseed, sodium thiosulphate and traces of minerals. By pictorial design and claims in labels and circulars, the product was offered as a remedy for large round worms in shotes, diarrhea, colds in hogs, spasmodic colic in horses, scours in cows and calves, as a conditioner for sheep and poultry, and even as a preventive of the death of hogs. According to the allegations and the verdict, the product could not have any of the pretended effects.

To obtain a conviction in such cases the government must prove that claims made on the label are not only false but fraudulent also—i.e., that the manufacturer knew they were false when he made them and made them with intent to deceive purchasers of the product.

Outstanding authorities in veterinary medicine testified for the government that the powder would not be effective when used as directed in the treatment of the ailments mentioned in the charges.

VETERINARY PROPRIETARY REMEDIES

All drugs intended for man or other animals, if shipped in interstate commerce, are subject to the provisions of the Food and Drugs Act. The Insecticide Act includes all preparations shipped in interstate commerce recommended for the control of insects or fungi affecting vegetation, man, or other animals. These Acts do not, however, give any authority to the Government in the control of advertising matter which does not actually accompany the article in interstate commerce.

With reference to therapeutic claims for medicinal preparations, the Food and Drugs Act gives the Government authority only over those therapeutic claims which are false and fraudulent. The Government is placed in a difficult position when it must prove to the satisfaction of the courts that the claims are not only false but that the manufacturer knows they are false; i.e., made the claims with intent to defraud. This section of the Act, and the fact that the law confers no jurisdiction over advertising matter which is distributed separately from the article, greatly limits Federal control over misbranded veterinary products.

The passage of the Food and Drugs Act dates back to 1906. The Bureau of Chemistry, of the Department of Agriculture, was given authority at that time to enforce the Act. Little or nothing was done in the early years of enforcement to control veterinary remedies, with the possible exception of hog cholera medicines. July 1, 1927, Congress designated the Food and Drug Administration, of the Department of Agriculture, to enforce this Act, as well as other Acts. Following successful court action against "Bowman's Abortion Remedy" in 1927 the Food and Drug Administration was authorized to create a veterinary section to direct the enforcement work against misbranded veterinary remedies.—*H. M.*

Subcutaneous Emphysema in a Dog

By A. H. KLEINFELD,
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Cases of generalized emphysema are uncommon in small animals. In 1931, Witt[1] reported a case of subcutaneous emphysema in a cat. He mentioned its uncommon occurrence in both the dog and cat; being unable to find, in the texts, any mention of the condition in the latter. I have found report of cases of this condition exceedingly sparse. In some text-books, however, reference is made to subcutaneous emphysema in dogs, and in others, general information concerning all animals, which would, of course, include the consideration of small animals.

In considering the general examination of the dog, Müller and Glass[2] describe the condition one may expect to find. The etiology and descriptions are discussed. Hobday,[3] in Canine and Feline Surgery, writes of the condition existing following injury to the skin in certain parts of the body citing an illustrative case in a dog. This particular case was caused by a bite wound under the throat resulting in a communication with the trachea. To me, this seemed of particular interest owing to the fact that it was quite extensive and, that skin punctures were necessary during the course of treatment. In this report, the symptoms and treatment are mentioned.

From the standpoint of general veterinary surgery, Fröhner,[4] in his text, describes the etiology and symptomology of traumatic emphysema. It is therein defined as "an accumulation of air in the subcutaneous tissue (pneumatosis)." An important point is mentioned concerning the fact that "inflammation of the subcutaneous connective tissue is usually absent although infectious material must gain entrance with the air." Subcutaneous emphysema is seen occasionally by inspectors on the killing floors of packing houses, due to wounds penetrating the skin of cattle and sheep in the flank or axillary regions in a manner to admit air as the leg is extended and then close as the body moves forward forcing the air to remote parts of the subcutem.

Fröhner also discusses septic emphysema. It is defined as "emphysema due to the entrance of gas-forming bacteria into the subcutis, namely *Bacillus phlegmonae emphysematosae* (gas-phlegmon), a gas-forming variety of the *Bacterium coli*, and other microscopic organisms." In contra-distinction to traumatic emphysema it is stated that "the gas beneath the skin is not composed of air, but of *putrefactive gases*, and one finds symptoms of septic inflammation in the skin and subcutem, the general conditions frequently undergo severe change (septicemia)."

Since the case which I shall describe was of traumatic origin, I am stressing particularly facts concerning trauma. However, mention of septic emphysema is made because it is unquestionably advisable to give this condition some thought when a case of emphysema is presented for examination. In the article by Witt, some difficulty was encountered in arriving at a definite diagnosis; a bacterial examination was made of a small amount of subcutaneous exudate as an aid in determining the cause. However, no evidence of gas-forming organisms was found.

In "Clinical Diagnostics" by Malkmus,[5] emphysema is discussed in general under the consideration of the skin, in the general part of the examination. Here, as in the text by Fröhner, is mentioned the symptoms and possible causes. Among the etiological factors are mentioned, "rib fractures, great intra-thoracic pressure and forced contractions of the abdominal muscles in bowel, bladder and uterine trouble."

Aside from those already mentioned, I have noted in the texts, the following factors causing traumatic emphysema: (1) Small wounds of the skin, particularly those involving areas of the neck, head and the wall of the chest. (2) The entrance of air or gas from certain of the internal organs caused by a perforation of their walls,

such as; the larynx, trachea, esophagus, the bowels or stomach. The presence of foreign bodies may cause puncture of the trachea or esophagus. (3) Perforating wounds of the chest, laryngeal or tracheal wounds, rib fractures, with complicated pulmonary injuries and (4) Subcutaneous wounds involving a communication with the esophagus.

Some time ago, I treated what was apparently an unusual case of subcutaneous emphysema. The symptoms were not unusual, but the primary lesion was, to my mind, a rare one.

December 18th, a large, two-year-old, wire-haired fox terrier, previously in good health, was brought in for examination and treatment. The owner stated that for the past four days he noticed a peculiar condition of the skin. It seemed somewhat puffed-up and crackled when touched. Four days prior, according to the owner, the dog having been out-of-doors returned home with this unusual skin condition. It increased in intensity thereafter. The owner also noted a small bruised area on the bridge of the nose between the eyes, which, he claimed, began to swell during the next day. No clues could be obtained as to what actually happened to the patient. It was the owner's opinion that the dog had been struck by a car, a blunt object, or fallen from some high place.

Upon examination, a marked subcutaneous emphysema was found. The only parts of the body not affected were the anterior part of the bridge of the nose, the forelegs from the elbows down, and the hind legs from the patellar region downward. The parts were moderately raised and upon rubbing, a crackling sound could be heard.

The condition found conforms with the description as set forth in the text by Müller and Glass. The latter describes the symptoms as an intense swelling of the parts, indenting on pressure with the fingers.

The dog showed no evidence of pain. The general attitude was normal. The temperature, pulse and respirations were normal. At no time during the period the patient was under my care did the temperature readings go above normal. The eyes were half closed owing to the puffiness surrounding them, the bulging areas causing a somewhat grotesque facial expression. No injuries to the ribs or trachea were found.

On the bridge of the nose, directly between the orbits, a puffy swelling about the size of a walnut was noticed. The swelling was cold and on palpation the skin could be pressed in a little; but on release of pressure resumed its original shape. It did not shift in position.

The swelling between the eyes and a portion of the surrounding area was shaved, cleaned and swabbed with tincture of Metaphen. A small exploratory incision was made over the swelling. A faint, hissing sound was heard when air passed out through the opening, the swelling becoming smaller. A distinct cavity could be seen through a hole in the bone plate apparently over the posterior portion or fundus of the nasal cavity. It was decided to place the patient under general anesthesia for a more thorough examination.

Pentobarbital sodium (Gr. 4½) was administered intra-peritoneally, and prompt and efficient anesthesia was produced. The patient was placed on the operating table in the abdominal position.

The field of operation was again cleaned and swabbed with tincture of Metaphen. An incision was made through the skin and subcutaneous tissue over the opening down to the bone, extending about one-half inch above and below the opening. Slight hemorrhage was controlled by the application of sterile pads.

The opening through the bone was a little less than three-quarters of an inch in diameter, almost perfectly round, the edges being somewhat roughened. It was confined to the posterior portion or fundus of the nasal cavity and practically on the median line of the caudal aspect of the nose. Normally, the cavity seen within is separated into two parts by the posterior portion of the nasal septum, which is made up for the most part by the perpendicular

.plate of the ethmoid bone. This septum had been destroyed. The region encountered is occupied largely by the ethmo-turbinates.[6] The normal form of the scroll-like laminae was missing except for a small area on the ventral aspect or floor of the cavity. Consequently, in appearance it resembled an empty sinus with a jagged, inner lining.

The cavity was approximately one inch in width, at its widest part, and about one-and-one-eighth inches in length. The floor of the cavity was about three-quarters of an inch below the surface.

There was a moderate amount of seepage of clear blood. This was easily controlled by constant sopping with sterile cotton. Bubbles of air could be seen and heard coming up through the floor of the cavity. A probe was passed up through the left nostril to a point below the floor. Through a small opening the tip of the probe was plainly visible.

Within the cavity itself, a probe could be passed back of the cribriform plate of the ethmoid bone and on each side, to the mesal walls of the orbits. The location was obviously under the anterior part of the frontal bones and the posterior tips of the nasal bones involving the articulation.

The parts were cleaned and swabbed with cotton and sterile saline solution, very small fragments being carefully removed. No foreign material nor any trace of larger bone fragments were found. I could not understand the absence of the latter; possibly it is to be accounted for by the free communication with the nasal cavity. It is possible that the particles might have been so small that they passed out by way of the nose.

After thorough cleansing, the cavity was packed with 5% iodoform gauze and the skin closed over with three sutures. The wound was covered with sterile, dry gauze which was held in place by adhesion to the surrounding skin area with Duo Liquid Adhesive (Johnson & Johnson), which was found ideal for use in keeping the parts, otherwise difficult to protect, well covered.

Forty-eight hours later, the pack was removed and the anterior stitch removed. There was neither evidence of any fetid discharge nor of suppuration. Only clear blood exuded. A fresh pack was inserted, and the wound was covered in the same manner. The patient was now bright, lively and appeared to be in fine spirits.

The dressings were repeated daily thereafter, and, on the fifth day (Dec. 23rd), the patient was discharged. The appetite, bowel movements and temperature were normal. The emphysema, at this time, did not seem to be as pronounced over the back as it had been when first observed. As far as the other involved areas were concerned, the condition remained unchanged.

Dec. 25th:—The patient was brought in for dressing. The emphysematous condition had diminished considerably. It was most evident now only in those parts where there were loose, dependent skin folds. A little serous discharge was present in the wound; a slight capillary hemorrhage resulted in changing the pack.

Dec. 27th:—All traces of emphysema had entirely disappeared. The general condition remained the same. The cavity seemed to be filling in; the serous discharge was much lessened. The wound was quite clean. The middle suture was removed.

Dec. 29th:—The wound was clean. There was very little bleeding. The opening was much smaller. The last stitch was removed leaving the edges of the skin at this point in clean union. Only the lower quarter of the original aperture remained exposed, the cavity itself healing clean. It appeared somewhat similar to the granulating healing of the socket wound following the enucleation of an eyeball when the lids are not sutured together. Only a very small strip of iodoform gauze could be inserted.

Dec. 31st:—The wound appeared clean and dry. There was no discharge and no hemorrhage. The cavity was much reduced in size, the opening being about one-eighth of an inch in diameter and the cavity about the same size. The cavity was swabbed and covered. No more packs were used.

Jan. 3rd:—The wound was now com-

pletely closed. Only a scab was evident in the center of the bridge of the nose, just a little above the level of the inner canthi, covering a slight indentation about a quarter of an inch in width.

Jan. 7th:—The only thing visible was a tender scar over an indentation which had been seen previously. It extended about an eighth of an inch from the surface.

March 7th:—The patient appeared to be in excellent condition. The hair was growing over the involved area, covering it so as to hide all traces of the lesion. A very slight indentation could still be felt on palpation and seemed a little sensitive.

The animal was seen recently and appeared as well as ever.

Comment

The emphysema occurred when the air passed up through the opening into the subcutaneous tissue, then passing throughout the subcutem. The opening through the skin evidently effected alleviation of the condition. It is obvious that surgical intervention and healing of the wound removed the cause. The emphysematous condition was relieved by absorption of the air already present in the subcutaneous tissue. The packs also helped prevent any further escape of air into the tissues.

At times, severe cases have been treated by puncturing the skin in several places, the air being pressed out or aspirated. In discussing subcutaneous emphysema due to chest injuries in the human subject, Sargent and Russell, in "Emergencies of General Practice,"[7] mention that "it is only of importance as an indication of a wound of the lung. It is easily recognized, and calls for no treatment beyond that required for the fractured ribs that have caused it. It will, if the patient recovers, subside spontaneously. Attempts to relieve it by multiple punctures through the skin are unnecessary, futile, and not devoid of danger."

The patient was in such good, general condition and seemed so little affected, it was thought best, at the time, to confine my attention to the seat of injury, trusting the emphysema to subside without surgical assistance. It was the skin condition that perturbed the owner primarily, and he was with difficulty persuaded that puncturing the skin and pressing out the air was unnecessary and should not be undertaken.

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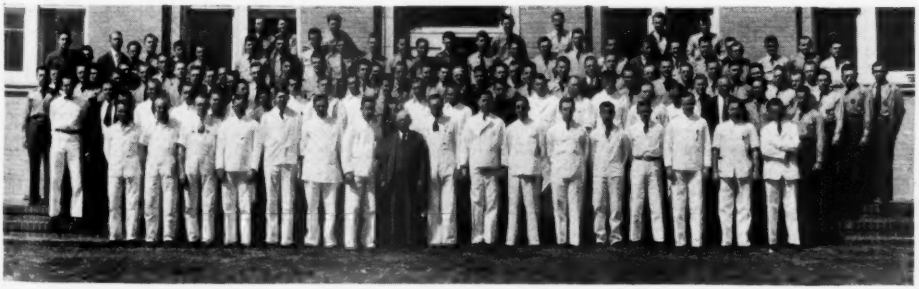

Faculty and Students of the Veterinary Division of the Texas A. and M. College

Rabies Control*

By ASHE LOCKHART,
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THE veterinary profession is being criticized by the medical profession, public health authorities and others for failure to control rabies in this country. There is no question about the desirability of rabies control. In some parts of the United States it is not a problem for us now, but it may become one at any time.

Annually more than 50,000 people deem it necessary to take the Pasteur treatment. The death rate from rabies is at present low, although an average of perhaps 50 people die from this disease annually. This number is not great enough to excite the public health authorities and they cannot be expected, in view of the more important problems with which they have to deal, to lend very much help in the control of rabies. It is strictly a veterinary problem.

THERE are some things about the virus of rabies it seems important veterinarians should understand. There are two forms of rabies virus, street virus and fixed virus. Street virus has a variable period of incubation and almost always produces death when disease comes from it. When street virus is passed through rabbits by sub-meningeal inoculation for about 250 generations, it becomes highly pathogenic when injected into the eye or under the membranes of the brain, but is non-pathogenic when injected hypodermically or intramuscularly. It then is called fixed virus.

Failure to take into consideration known facts concerning the differences between street virus and fixed virus has resulted in at least three poorly planned and indecisive pieces of experimental work emanating from institutions usually considered as authoritative. The results of these experiments have been seized upon by opponents of rational methods for rabies control, have been widely published, have done much to spread misinformation, thereby hampering the work of those interested in rabies control and lessening the confidence of the public in vaccination, the one practical means that we have of controlling rabies in this country.

Fixed virus is very easily destroyed. Street virus does not enter into anti-rabic vaccine at the present time. The original vaccine prepared by Pasteur was a dried fixed virus. It is still perhaps the best treatment to use for severe bites on the head.

HÖGYES' vaccine is a dilute, dead, fixed virus. It originally was thought to be a living attenuated virus. Semple's vaccine consists of a 5% suspension of ground brain or cord, usually administered as a series of fourteen injections.

The single injection anti-rabic vaccine was worked out by the Japanese. It is a chloroform or phenol-killed, fixed virus. It is made from the brain and spinal cord of animals which have marked symptoms of rabies on the sixth day after subdural inoculation with fixed virus. The dose has been fixed at one gram of brain or fixed virus in 5cc of physiological salt solution. It is therefore a 20% suspension. There is no certain, dependable evidence that there is any difference in the efficiency of phenol-killed and chloroform-killed vaccine.

It would seem a wise precaution that the vaccine to be used in dogs be not made from an animal susceptible to canine piroplasmosis or canine filariasis, since presumably there is a possibility of the vaccine carrying either of these infections.

QUARANTINE for the control of rabies has been successful in England and some other European countries. It has been a failure in the United States. Nevertheless the partial restriction on the liberty of dogs that is possible in the United States in the presence of a severe outbreak, is a valuable procedure.

* Notes from an Address presented at the Third Annual Meeting of the American Animal Hospital Association, St. Louis, Missouri, April 14-15, 1936.

Anti-rabic vaccination has been a valuable procedure wherever it has been carried out routinely.

Drs. Flynn and McLaughlin published[1] a summary of the Kansas City experience with compulsory anti-rabies vaccination in 1932, and since that is available, I will confine my remarks on the subject to what has occurred since that publication. It may be well to recall, however, that during each of the first five years of the operation of the compulsory vaccination ordinance, dogs were vaccinated by the city veterinarian as follows:

1927	20,000
1928	15,000
1929	14,000
1930	18,000
1931	21,000

The city health department estimated the number vaccinated by veterinary practitioners at 1,200 per year.

The laboratory of the Kansas City general hospital, where the brains of dogs suspected of being rabid were examined, reported the number of brains examined for each of the first five years of the life of the ordinance, as follows:

Year	*Number*	*Positive*	*% Positive*
1927	150	71	47.33
1928	51	12	23.53
1929	45	8	17.77
1930	30	5	16.66

The record of rabies treatment in the outpatient clinic of the general hospital was:

1925	280
1926	331
1927	132
1928	30
1929	20
1930	32

One dog was responsible for 15 of the 32 treatments given in 1930.

The writers (Flynn and McLaughlin) believed but for the fact that rabies was brought into the city by unvaccinated dogs from the rural areas surrounding and across the state line from Kansas City, Kansas, and further that at no time was more than two-thirds of the dogs in Kansas City vaccinated, that the prevalence of the disease would have been reduced 99+%.

IN 1927 an ordinance was enacted in Kansas City providing for the annual vaccination of all licensed dogs. In the nine years that this ordinance was in effect up to January, 1936, 130,667 dogs had been vaccinated by the city veterinarian, and it is estimated that practitioners have treated an additional 40,000.

Prior to the enactment of this ordinance in Kansas City and early in 1927, rabies was a serious problem. One could find rabid dogs in one or more of the veterinary hospitals in Kansas City at any time. It is estimated that continuously since 1927 from two-thirds to three-fourths of the dogs in Kansas City have been vaccinated. In the nine years since the compulsory ordinance went into effect there have been 190 cases of rabies in dogs in the city. Of these, three occurred in vaccinated dogs more than 30 days and less than 12 months after vaccination; five occurred in dogs of which the record is not clear, and 182 cases occurred in unvaccinated dogs, which as stated, comprised at most only one-third and at times only one-fourth of the dogs in the city. Rabies has been continuously prevalent in the country surrounding Kansas City during the past nine years.

There are two methods available to us for the control of rabies: (1), laws providing for the quarantine of dogs, and (2), compulsory vaccination. The former is out of the question in the United States. It is just not in accord with the average individual's ideas of his right to do as he pleases with his own property although it has worked well in some other places.

Recently Pennsylvania authorities expressed confidence in the dog quarantine laws of that state, but a little examination shows that rabies is as prevalent now as it was 40 years ago in Pennsylvania, and the best that can be said for their rather strict

[1] North Amer. Vet., 13:5, pp. 44-6.

quarantine laws is that they may have prevented an even greater prevalence of the disease in that state.

IN ALL countries where vaccination has been used, some rabies continues to exist, but its prevalence has been decreased more than 90% by this measure. Among other things, in the United States, over a period of 20 years, this would save a million people the ordeal of taking the Pasteur treatment, and would save a great amount of apprehension and worry, an uncounted number of farm animals, would lessen the objection that a large portion of the public has to the dog and would increase the popularity of this animal as a pet and companion.

A vast amount of public education will be required before general, compulsory, anti-rabic vaccination can be brought about in this country. The public needs information as to the true nature of rabies. All measures for its control will meet the opposition of a not inconsiderable number of fanatics and ignorant persons. The general public needs information as to the true nature of this disease to overcome such opposition.

Probably because of this determined opposition, the larger veterinary associations have been reluctant to go on record unequivocally for the control of rabies, and governmental departments from the Federal government to the municipalities have been slow to take it up.

The Rabies Conference held in Paris under the auspices of the League of Nations in 1927, endorsed annual prophylactic anti-rabic vaccination. Eleventh International Veterinary Congress, 1930, passed a resolution endorsing annual vaccination of dogs in infected districts, which of course include the United States. The A. V. M. A., through its committee on biologics, endorsed anti-rabic vaccination at the annual meeting in Los Angeles in 1930. In 1935, the A. V. M. A. went on record twice as approving annual anti-rabic vaccination, once by adopting the report of its committee on biologics, and a second time by adopting a resolution to this effect in the House of Delegates. When the report was published in the official journal, the essential paragraph was omitted.*

IN 1928 the Surgeon General of the army ordered the vaccination of dogs on military reservations and the practice has been continued. The results offer convincing proof of the value and almost complete success of this measure for rabies control.

The treatment of exposed dogs is of doubtful policy. In the main it works, provided at least 12 and better 14 doses of 10cc of the vaccine are given. Treated animals should ordinarily be held under observation for a period of 60 days and better 120 days. Even then the possibility remains that an occasional one, perhaps only a fraction of 1%, will develop the disease and some one may lose his life as a result. I believe that the treatment of a dog, bitten about the head, particularly on the nose or lips or about the eyes, is inadvisable.

Where systematic rabies control measures are undertaken, it seems best to destroy exposed dogs rather than to treat them.

* * * *

FRED L. KILBORNE DEAD

Dr. Fred L. Kilborne, discoverer of the rôle of the fever tick, *Margaropus annulatus,* in the transmission of tick fever, died at his home in Moravia, New York, May 23, 1936 at the age of 77.

Doctor Kilborne was the last of the four graduates of Cornell University to receive a veterinary degree (B.V.M.). The others were Myron Kasson ('71), D. E. Salmon ('72) and A. M. Farrington ('79). Doctor Kilborne was graduated in 1885 and entered the newly organized Bureau of Animal Industry on August 15, following. He was made Director of the B. A. I. Experiment Station, succeeding Dr. W. H. Rose. He held this position until July 1, 1894, when he resigned from the Bureau and was succeeded by Dr. E. C. Schroeder, the position being then designated "superintendent."

In 1889, in an experiment designed to

* This has been corrected, *vide Jour. A.V.M.A.* 41:5, May 1936, page 665.

determine whether or not the tick was responsible for the transmission of Texas fever in cattle. Doctor Kilborne discovered its relationship to the disease, one of the most important, fundamental discoveries in medicine and the first discovery of the transmission of a protozoan disease by an arthropod. A full account of the experiment was not published until 1893, and at that time the account contained also the discovery of the causative organism of tick fever, *Babesia bigemina*, by Dr. Theobald Smith. The paper was published jointly and Theobald Smith being senior to Kilborne in the Bureau, his name was used first. Probably from this circumstance and the further circumstance that Doctor Smith was an M. D., the medical profession at once gave Smith the principal credit for the major discovery.

Smith continued in scientific work and made many important contributions to medical knowledge. Kilborne gave up research to enter veterinary practice for five years and then discontinued veterinary work entirely, the result being his name came, in time, to be mentioned but rarely in connection with his epoch making discovery. Even the Secretary of Agriculture in mentioning, in a radio broadcast, this great contribution to scientific knowledge referred to Doctor Kilborne as "Mr. Kilgore." He came very near to being the "forgotten man."

Veterinary literature did little, until recently, to remedy the injustice done Kilborne. However, the local committee, in connection with the 70th annual meeting of the American Veterinary Medical Association in Chicago, in 1933, presented Doctor Kilborne with a medal in commemoration of his discovery; the "Veterinary Military History of the United States," published in 1935, accords him the major credit for the discovery, and an article published by Dr. Maurice C. Hall (*The Journal of Parasitology*, 21:4, August, 1935), accords him recognition in the matter. It is gratifying that these three separate recognitions of his work, which reflects great credit upon veterinary medicine, should have been published before his death.

RINGWORM COMMON IN CATS

I am very much interested in the article in the May issue of VETERINARY MEDICINE entitled "Ringworm Infection of Cats," by George W. Rawson of Detroit, Michigan. My assistants have been cooperating with me for the past several years in paying special attention to ringworm as it affects various animals and its transmissibility to man. I have seen quite a large number of cases of ringworm in both dog and cat. Treatment has not been very satisfactory but some animals have recovered. It has shown very definite powers of spreading and in most cases would soon cover the major portion of the body unless checked by successful treatment. Some four or five years ago, my attention was drawn to the diagnostic technic mentioned in the Rawson article as the fluorscence test, and at that time I secured a Wood's filter for our water cooled ultra violet light. This apparatus is used almost daily in our clinic work, and it is proving to be an almost invaluable aid in the diagnosis of skin troubles in animals. The fluorescence of ringworm is very marked. Diagnosis is quite easily made with this apparatus. Many times we find that only a section of a single hair shows infection in a particular location. The light will bring out the infected areas that we have been unable to define, or even suspect by observation, palpation, etc. This light has brought out the fact that cats are carriers of ringworm infection even though no lesions are visible by ordinary light, and the animal shows no disease of the skin.

I have had quite a number of cases of transmission to the human from the animal. The lesions on the human give a fluorescence comparable to that of the animal.

I have found one of the most common locations for ringworm in the cat is about the mouth, the edges of the lips, about the face, eyes, ears, feet, neck and then other parts of the body, especially where the infection would be carried by lapping, the perineal region being often infected.

The Animal Rescue League.
W. A. Young, D.V.M.,
Boston, Mass.

Barlow's Disease of the Dog

By L. A. MERILLAT,
Haver Glover Laboratories,
Chicago, Illinois

BY COUPLING the mistaken doctrines of two centuries with revelations of the present time, an entirely new departure for the study of skeletal diseases of animals presses itself upon the mind. General demineralizations (osteomalacia, rickets, etc.) one the one hand and injuries (osseous vegetations: spavin, ringbone, etc.) on the other, together with the infectious theory interspersed here and there, have heretofore monopolized the study of bone pathology. In the total absence of any proof, despite searching investigations of fifty years, the infectious theory was already dismissed when the nutritional factor began to clarify the etiology of so many erstwhile mysterious diseases of man and animals. Moreover, investigations of recent times have placed these bone troubles squarely into the nutritional group by showing that between the general clinical demineralizations and the strictly local manifestations such as splints, spavins and ringbones, there are all the intermediate states of skeletal privation leading to invisible damage expressed only as lameness or other manifestation of pain, and systemic disorder.

IT IS now about 20 years since the problem of alimentation entered the pathogenesis of osseous affections clearly. This would not have been possible earlier. The essential factors of a complete alimentation were not known. A sufficiency of protein, fat, sugar (or pro-sugar) and water was the orthodox conception of an ample, alimentary intake. The mere production of body bulk, energy and heat was the sole objective of feeding practices, and the process of exchanges (metabolism) explained the mechanism of utilization. The dependence of life upon "other things" whose existence was not even suspected while not entirely a new idea, now occupies a place in the medical frontier. To repeat a hackneyed fact, hormones, vitamins and the mineral elements, their functions and amplitude, are playing the principle drama of modern medicine, because, infinitesimal as some of them are, they are indispensable to the vital functions. Absence or lack of certain of these factors is known to fulminate grave attacks of definite diseases, clinically known for centuries but understood only during the last fifteen years. Three such diseases are outstanding examples: beri beri, scurvy, and rickets, not to mention roup, sterility, abortion, goiter, certain paralyses of dogs, cattle and swine, and various osseous dystrophies, among others too numerous to relate.

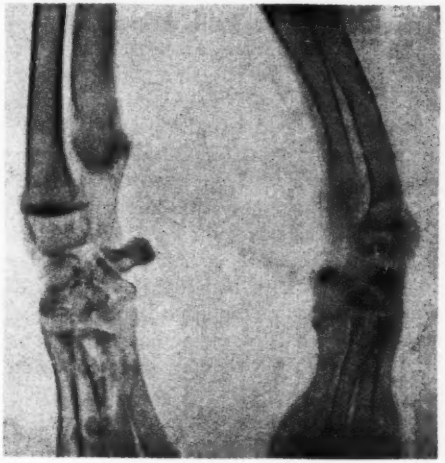
For this discussion, scurvy is outstanding. In 1671, Nicolas Venette of France recognized the presence of an antiscorbutic factor in sour cherries, lemons, oranges and other fruits. He discovered that such fruits prevented and cured scurvy. Fifty years later (1720), Kramer of Hungary wrote: "Where individuals, through neglect or necessity, do not consume fruit or green legumes, the affection (scurvy) soon develops, regardless of soil, climate or age." In 1895, Theobald Smith reported that guinea pigs nourished exclusively with cereals died of a hemorrhagic disease affecting the mucous membranes. In 1908, Holst and Fröhlich of Germany demonstrated that scurvy was due to the privation of a specific principle. In 1912, Funk classed that principle among the vitamins which were just coming more clearly into the study of medicine. Since then scorbutic conditions have been noticed in animals. Weill and Mouriquand of Lyon observed it in rabbits and cats; Gangee in the dog; and Hart in the monkey. The rat, ox and pigeon appear to be immune to scurvy, the guinea pig being the experimental animal of choice.

Acute scurvy can be produced *ad libitum* in the guinea pig by feeding a scorbutic ration (oats, barley, hay, yeast and butter). Such a vitamin-C-depleted ration brings out

clinical symptoms in about 15 days. Polyuria, excitement, and later painful tumefactions of the posterior articulations and chondro-costal symphyses, gingival disorder, dental troubles, alopecia, subnormal temperature and death, comprise the usual syndrome. The autopsies reveal submucous, subperiosteal, and subcutaneous hemorrhages, fragile bones and visceral congestion. "The blood vessels seem incapable of holding the blood within them" (Wolbach and Howe). Moreover, the cell-forming function of the marrow defaults (Collet). According to Zilva and Wells (cited by Collet), the dental trouble arises from degeneration of the pulp. Iron metabolism is gravely affected. In fact, the blood picture is badly upset. In the chronic form of the disease (guinea pigs), subperiosteal hemorrhages are characteristic. The bones take the brunt of the attack—a fact that inseparably connects scurvy with skeletal diseases of animals even if other evidence to that effect were absent.

BUT what is Barlow's disease? In 1883, Barlow, a distinguished British surgeon and author, described a scorbutic condition of children which cured up like magic from feeding the patients an antiscorbutic diet. The disease, now well known, is manifested by anemia, pain in the limbs, tumefaction of the gums with hemorrhages, granulations around the necks of the teeth, and pronounced halitosis. There are also subconjunctival, subcutaneous, submucous, urinary and meningeal hemorrhages and gastrointestinal troubles. The disease affects children six months of age and older who have been improperly fed. A long chain of symptoms ensues which is unnecessary to set down for this purpose. Suffice to say that Barlow's disease is a true infantile scurvy that also affects dogs as has been shown by veterinarians of the school of Lyon. The human form is cured promptly by feeding an antiscorbutic diet, that is to say, a diet containing a sufficient quantity of vitamin C, and so does canine scurvy.

The existence of scurvy in dogs has been contested.* Perhaps, it has not been recognized. Perhaps, it has been confused with rickets, or with rheumatism. Occasionally, in our own limited observation, we see young dogs lame and sensitive to touch, crying out when handled, and, judging from interviews here and there among capable and observing experts, these mysterious types of trouble are by no means infre-



—Courtesy of Revue Vétérinaire

Left: foreleg of a dog, four months of age, affected with scurvy (Barlow's disease). Note the distinct, opaque line at the distal epiphysis of the radius indicating perfect ossification, together with a pronounced rarefaction of the ulna, all different from the lesions of rickets.

Right: foreleg of a dog, five months of age, affected with rickets. Note the enlargement of the radio-ulnar epiphyses characteristic of rickets.

quent among the young canine subjects filing before small animal practitioners. "Rickets with rheumatic complications" is a handy diagnosis. In 1922, Katherine Gangee published an article on "infantile canine scurvy" of this type in a Griffon (Brussels), nine months old. 'It was due to feeding Horlick's Malted Milk and beef extract, exclusively. The symptoms were loss of flesh, pronounced posterior lameness, red and tumefied gums, and general signs of suffering. The diagnosis was con-

* Innes in 1931 concluded as a result of his investigation that dogs can be kept on a scurvy-producing diet for 154 days without causing any signs of ill-health or the slightest trace of lesions in the bones and also that dogs appear to be capable of synthesizing vitamin C.

firmed, as it can always be with the greatest certainty, by the prompt recovery that followed the use of an antiscorbutic diet (fresh meat, fruit juices, fresh vegetables). This is but one of many cases found in recent literature, published solely for the purpose of revising the old notion that scurvy is not an animal disease. In fact, there appears to be no doubt that there is a Barlow's disease in dogs, and that in our investigations of rickets, eczema, rheumatism, lameness, faulty locomotion, articular tumefactions, anorexia, stomatitis, and certain digestive disorders, vitamin C privation may well be given a little consideration. In the ordinary conditions of life, at home or astray, the mixed and varied ration dogs receive unaware of its nutritive essentials, obviously explains the scarcity of pronounced clinical scurvy, but it does not follow that subclinical, unrecognized scurvy, probably complicated and confused by other deficiencies and ambient infections, is not a pretty common disease of the canine clinic.

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A SIMPLIFIED AND MORE EFFICIENT POULTRY HYGIENE

We were taught that the primary incentive of animal husbandry is profit to the husbandman. Two great factors influencing profit is disease and labor.

The system about to be described has been practiced by the writer for more than a decade and while enthusiastic over its merit, he hesitated to write of it because of its extreme simplicity.

All chicks should be started in a scrupulously clean house, with new litter. Litter composed of wood shavings, peat moss or any good absorbent material, should be deep; never be less than six or eight inches deep, even when broken up and worked down. Litter applied sparingly and frequently is insanitary and extravagant. When liberally applied it need only be cleaned out once, or at the most, twice a year. Corn stalks not only cut, but crushed or shredded so as to divide its fibers, should make excellent litter.

Because of the operation of antibiosis, infrequent replacement of deep litter is practically and biologically sanitary. By antibiosis is meant the destructive effect of one kind of microörganism upon another. For example, putrefactive organisms are the worst enemies of coccidia and many viruses.

No roosts or droppings boards should be used. Droppings boards are insanitary and entail much unnecessary and disagreeable labor. After chicks have passed the brooder stage, the houses should be open at all times. Open front houses should be used. Hens sleeping on the floor with deep litter and cuddled close together are comfortable and warm through the long winter nights. There is much less loss of heat through radiation from their bodies than when upon roosts. Heat is the most costly type of energy, the source of which is the feed. In hot weather, the birds separate—spread out—and are comfortable.

Besides the principle of antibiosis, with this system, there are favorable physical factors. The dryness of the deep litter makes it unfavorable for the development of pathogenic parasites and microörganisms which naturally are far less resistant to environmental factors outside the living body than are saprophytic organisms. Beside its high degree of effectiveness in controlling disease and parasitisms, this system eliminates nearly all of the hardest and most disagreeable drudgery of poultry husbandry.

As stated before, this system should be started with chicks. Do not remove the roosts from birds accustomed to roosting at night, as confusion might cause loss from crowding. The corners may be obliterated by cementing them up to about a foot high, or by the use of wooden triangles. This method will reduce loss from

parasites and disease to almost nothing. Every year there was some slight evidence of fowl pox in the flock, but not enough to be noticed except upon the most careful observation. No vaccination was necessary as the resistance of the birds was high and none were sick.

Disease in poultry is evidence of poor management and whenever parasites such as worms, lice or mites are a problem, it reflects seriously on the management. The presence of any lice at all on poultry or the necessity to use powder or any lice killer is evidence of poor poultry husbandry. There should be no lice to kill.

F. G. STEINBACH,
Wildwood Crest, N. J.

ANOTHER NO-VETERINARY-SERVICE NATION PASSES OUT

The following from the London correspondent of the *Journal of the American Medical Association* is of veterinary interest:

"The Royal Society for the Prevention of Cruelty to Animals has made an appeal for help for the animals which must endure terrible suffering in the war in Abyssinia as there is no veterinary service. . . . During the Great War the society collected nearly $1,250,000 and spent it on British sick and wounded horses. In an appeal for funds, published in the *Times*, the society suggests that the need is greater now in one way, as the Abyssinians have made no provisions for the care of their animals."

Even had the Ethiopians been the military equals of the invaders, man for man and arm for arm, the absence of a veterinary service with their troops would have brought them swift defeat, if the lessons of the World War may be taken as criteria.

Without a veterinary corps in full operation any well equipped army in the field is soon reduced to a straggling mob. Napoleon's horrifying retreat from Moscow in 1812 was dramatized in 1936 if half one hears about the battlefields of Ethiopia are true. Italy, on the other hand, went into action well prepared in this respect, carrying with its troops the lessons concerning mobility and supplies learned on two fronts twenty years ago.

ACETONEMIA (?) WITH FATAL OUTCOME

Three cows got into a vegetable garden in the fall of the year and ate green pole lima beans and the vines, that had been dusted quite a while previously with an arsenite preparation to destroy Mexican bean beetles. Two of the cattle showed no ill effects. One, a grade Jersey, eight years old, developed a profuse diarrhea which cleared up within a week.

I saw the cow a month later. At that time, she was in poor physical condition and had been sick 24 hours. She had difficulty in swallowing, ate slowly, with little appetite, was constipated and her temperature was 98.5°F. No rumen sounds. She was very weak and the head was always turned towards the left and when moved, she walked always in a circle to the left. I gave a physic of oil and lard, left instructions to repeat the dose in six hours; also 20 cc. camphorated oil intramuscularly.

The following day the cathartic had not worked and the condition of the cow was unimproved. I gave a saline purgative at this time, 20 cc. camphorated oil intramuscularly, ordered the cow to be well blanketed and left tartar emetic, baking soda and powdered ginger to be given every four hours, dissolved in warm water.

The next day the cow was still unimproved, except the temperature was normal and a small amount of feces had passed, which was not quite so hard and dry as previously. No rumen sounds. I gave 250 cc. calcium gluconate solution (20%) in two places, subcutaneously, also 20 cc. camphorated oil intramuscularly; also epsom salts, ½ pound, with powdered ginger and 60 grains tartar emetic. I left a carminative to be given at two-hour intervals.

The following day the cow was practically collapsed. Scarcely any movement; gritting teeth; temperature down to 98.5° F.; bowels had moved but little. I tried a salt water enema. No feces removed. Imperceptible pulse; large induration on brisket on left side, where I had injected

half of dose of the calcium gluconate compound solution the previous day. The animal died during the night.

What condition was here presented? What suggestions would you offer me as to this case?—E. D., Pa.

It seems unlikely that the raid on the garden was connected with the final ailment. Do not overlook acetonemia in such cases either as a primary ailment or a complicating condition. It is not difficult to confirm or eliminate and if present, responds readily to treatment.

PROTRACTED DIARRHEAS IN THE HORSE ARE GRAVE

I was called to see a black mare, 15 years old. The history was that this mare had been scouring intermittently for several weeks. She was in poor condition, but was eating well when I first saw her. The owner had given her baking soda and tannic acid in feed for the past several days. I gave her a quart of mineral oil and left a large quantity of phenolsulphonate tablets (with copper) to be given in feed three times daily.

Five days later, the owner reported that there had been no change in the condition. I called again and found the horse about as before, and suggested that she be given only boiled, hard water, pure timothy hay and a handful of cottonseed meal at each feeding. I dressed the teeth, which were not in good condition, though not very bad, and left a catechu compound (powder) to be given on the feed.

Nine days later the owner reported that the horse was no better. I called and found her very bad. She was not eating as well and she was scouring worse than before. The pulse was not so good as previously and mucous membranes were quite pale. At my wits ends as to what to do, I tried laudanum and Crequiatore in double doses.

At this writing, the owner reports the horse as bad as ever and that he will probably lose her. This is the third horse that I am going to lose in this same manner recently. In the case of the first, I was the third veterinarian on the scene. On autopsy several pieces of concrete were found in the intestine of that horse. The second was a six-year-old horse. No postmortem examination was made.

Any suggestions for the handling of such cases will be appreciated.—E. D., Pa.

This animal appears to have been eating something over a period of weeks that was irritant to its intestinal canal. Whether it was mold, a chemical irritant or even an infection is not clear from the description. This is certain—whenever a diarrhea appears in a horse, particularly in one of this age, and continues for more than a week, the prognosis becomes grave and you may just make up your mind that that man is going to lose his horse if something is not done right away to ascertain the cause of the ailment, and remove it.

LEAD POISONING (?) IN A COW

November 10th I was called to see a purebred Guernsey cow, "Nellie of Dixon," No. 165107, 11 years old. About 20 head of cattle had been in the barnyard most of the afternoon and were put in the stable at 4:30 P. M. While feeding, it was noticed that this cow was uneasy, colicy. She would stamp her feet, kicking at her abdomen and throw herself in her stall, and would assume unusual attitudes and positions. She would then suddenly get up, stamp around, kick far forward at her abdomen, possibly be quiet for a few minutes, eat a few mouthsful of hay and then she would have another paroxysm of pain and again lie down.

I saw the animal about six o'clock. She was in rather poor physical condition, passing flatus continually, and very nervous, seldom standing still for more than a few seconds at a time. She would kick far forward, and when lying down, would twist her head around in the stanchion in a very unusual manner.

The temperature was about 101° F., the rumen quite active. The cow had calved about three months previously and had been bred recently. Her breathing was fairly normal. A dose of bovine purgative (mostly epsom salts with ginger and nux

vomica added) was given at the time of my visit and another dose was left to be given at midnight. I gave the cow 20 cc. of camphorated oil intramuscularly and 10 quarts of salt water as an enema, which was expelled almost as quickly as it was injected, without bringing any feces with it.

I directed the removal of the cow to a box stall and that she be well blanketed. I saw the cow again the next forenoon. She was lying quietly in a box stall in the position usually assumed by cows suffering from parturient paresis. She raised her head, however, and held it ahead of her but very low. We urged her to rise, but she refused. Her temperature (per vagina) was 98° F. She was still passing flatus, but not as constantly as on the previous evening. A few bowel passages were in the box stall, but it was scanty, hard and glistening (mucous). No rumen sounds. The cathartic had not acted, though I had given a very large dose the previous evening.

I treated the cow at this time as follows: 250 cc. calcium gluconate compound (20%) at two places, subcutaneously; 20 cc. camphorated oil intramuscularly; one-half can Karo syrup diluted with a quart of warm water as a drench, slowly. While we were giving the drench, the cow got to her feet very laboriously and when on her feet, was weak and unsteady.

I left instructons to keep her covered well; to give her another half-pound of Karo syrup in two hours, and a pint of hot strong coffee every two hours. Before I left the farm, the cow had again laid down; a position from which she never stirred. At 5:00 o'clock that evening, I received word that the cow was dead.

What condition was here presented? What suggestions would you offer as to this case and what did I do that should have been left undone, or leave undone that might have been helpful?—D. D., Pa.

The information given is insufficient upon which to base a diagnosis. An autopsy might have revealed the cause of the ailment. The symptoms given and the course described are very suggestive of acute lead poisoning.

DRASTIC MILK-INSPECTION REGULATION

A recent flare up of tuberculosis among the herds supplying Santa Barbara with milk causes one to wonder whether our health officials are going forward or backward in their attempts to improve the milk supply of our city.

It is boasted that Santa Barbara's milk is produced under the latest and strictest sanitary regulations prevailing anywhere. One of these regulations provides that twice daily, just before milking, the udder and rear parts of the cows must be washed. This is usually performed by turning a hose of cold water on the cow till half her body and the floor are thoroughly wet.

In the winter time, with the temperature low, often near the freezing point at the morning washing, these cows stand in the stanchions exposed through our open-side barns, to a chilling ocean breeze while they are fed and milked. It is a severe ordeal for a heavy milking cow, with her large sensitive udder, perhaps only 10 days past calving. It is nothing short of abuse.

When one protests to the owner, the answer is: "Oh, I know it's risky, but I have to comply with the regulations if I want to stay in business."

These cows, particularly the heavy producers, don't stay in the milking line very long. These regulations were invented and are being enforced by laymen, without regard to their effect on the health of the animals and without the advice of a veterinarian. It is pretty difficult to say just what their effect is on the health of the cows, but a recent experience with the tuberculin test causes one to wonder if such abuse, thoroughly wetting cows that must stand in a cold breeze, is not an important factor in lowering their vitality. Further does "thorough washing" lower the bacteria count of the milk beyond what would be accomplished by simply wiping the udder and flank with a damp cloth?

Tuberculin testing of the cows supplying milk for Santa Barbara was commenced 28 years ago, and on the first test only 2% reacted. The testing has been continued

ever since, for a good many years being done by the state, but in the past year, by Federal inspectors.

In one of our best dairies where the cows have been subjected to this cold bath twice daily, 22 of 128 head reacted. This dairy is situated in the throat of a canyon where the cold, ocean breezes are sucked in through the pass with every rise in temperature of the land above. In another modern dairy, where money has been spent lavishly for equipment to enable them to furnish high grade milk, 17 reactors were found. In still another similar dairy, there were 14 reactors.

These high percentages of reactors have all occurred since the present regulations for the production of milk went into effect about two years ago.

JAMES H. HESTER,
Santa Barbara, Calif.

ANIMAL EXPERIMENTATION IS HUMANE

It has been argued by some that this use of animals is useless and cruel. As to the charge of uselessness the answer is given by history. As to the charge of cruelty, I have a word to say as a man who has been engaged in animal experimentation for over a third of a century, and should know something about it. Cruelty is the wanton or useless infliction of suffering on man or animals. I know the biological and medical research laboratories in this country and abroad, and can state as a fact that in animal experiments involving pain the same anesthetics are used as in surgical operations on man. Neither man nor the animal needs an anesthetic to stand a mosquito bite or the passing of the hypodermic needle through the skin. Moreover, an animal in distress usually cannot answer the questions put to him by the medical investigator. When animals under anesthesia are used in medical teaching, they are not allowed to come out of the anesthesia. Death by anesthesia is probably the least uncomfortable. There is inflicted on animals more pain in one hunting, trapping and fishing season than in all the centuries of animal experimentation. The pain inflicted by the hunter, fisherman, and trapper is not wanton, to be sure, and yet inevitable. For what purpose? For the most part for the joy of chase, the possession of furs (as ornaments often), for food and joy of the strife which causes pain and eventually death by suffocation or bleeding.

We use animals, by common consent, for food, for clothing, for labor, for pleasure. How can it be wrong to use animals humanely to increase our understanding of life, our control of disease, both of which contribute to human happiness? We must retain the sense of proportion. Man survives only by destruction of plant and animal life for his food. Man's welfare demands either death control or birth control of the animal, but these must be carried out humanely. When the animal dies as a part of biological and medical investigation, the death is humane. We cannot indict or convict of cruelty to animals our universities, medical schools, and hospitals on any evidence so far brought forth.

Biological and medical investigation and teaching, guided by the humane behavior of the sane and civilized man, must remain free, must not be restricted, lest a hundred years hence our descendants will foregather, not to celebrate another Century of Progress in biology and medicine, but to condemn dreary decades of medical and biological stagnation.—*A. J. Carlson*, University of Chicago.

AND NOW LOOK AT 'EM

Five years ago the department of commerce was taking a fish census; the department of agriculture was sending out bulletins telling housewives where bedsheets wear out first. They told the farm wife that curtains keep out light and insure privacy—and one bureau sent out a questionnaire asking in which room of the house love-making was carried on. A whole bulletin was devoted to the love life of the bullfrog and still another solemnly announced that children like to play.

Abstracts

CARE ESSENTIAL IN CAFFEIN INJECTIONS

When caffein is to be injected subcutaneously, especial care is to be exercised to prevent any part of the solution being injected intramuscularly.[68] The powerful dehydrating action of the drug interferes with phagocytosis; consequently, germs, carried into the tissues accidentally, will grow unrestrictedly and may produce a phlegmon with deleterious results. In the case under discussion, the injection of oil of turpentine, around the border of the phlegmon for the purpose of creating a wall of leucocytes surrounding it, alleviated the acute symptoms and brought the edematous swellings to abscess formation.

DIET IN DISEASE OF KIDNEYS

Diseases of the kidneys are of frequent occurrence in carnivores,[73] especially in dogs. The causes are attributed to excess of meat in the diet, to infectious diseases, to toxemias, to intestinal helminthiases, and to febrile diseases in general. The principal therapeutic measure in acute nephritis as well as in chronic nephritis consists in relieving the considerable involvement of the circulatory system. The intake of fluid must be curtailed; water is to be avoided entirely. If the acute nephritis is complicated with hydropsy and edema, then the supply of fluid is to be discontinued at periodic intervals. In chronic nephritis, the collection of fluids in the organs and body-cavities are to be eliminated by diuretic measures. All foods rich in purin, especially meats are to be avoided at the onset of an acute nephritis; substitutes in their place are sugars, fats and cereals. In chronic nephritis, limited amounts of veal and fresh-water fish are to be fed, because the body protein is being split up. Salt and salty feeds are to be avoided altogether. Milk may be given in small amounts only. In case of chronic interstitial nephritis, when the excretion of N-containing urine constituents results in a considerable hypofunction, the elimination of the protein waste products must be accelerated by means of copious drafts of liquids. The addition of protein is not indicated; instead, carbohydrates and fats should be given. The diet for amyloid and for fatty degeneration of the kidneys is the same as for chronic nephritis, except that it should be low in fat.

A TRUE HOLLOW HORN

Among the cattle herds of Venezuela a disease has been observed[69] showing the following symptoms: Temperature up to 41.5°C. Low carriage of the head; swaying of the head forth and back; pronounced rhinitis; digestive disturbances; speedy emaciation; formation of caverns in the affected horn, progressing from the tip to the base until the horn marrow has been destroyed, and leading to deafness and sudden death. Percussion of the horn produces a typical sound. Examination of the blood reveals the presence of trypanosomes. The examination of the diseased horn marrow reveals the presence of *Pseudomonas aeruginosa.* Treatment consists in intravenous injection of Tartarin stibiatus.

EFFECTIVE OXYTOCCIC AGENTS

The intravenous injection of 6cc of concentrated orasthin, or of concentrated hypophysin will create vigorous labor pains within a few minutes, lasting for several hours.[70] The technic of the injection consists in mixing the hypophysin with 10cc of freshly drawn venous blood, and the slow infusion of this mixture. This treatment effected the prompt expulsion of the after-

[68] Doenecke, H., 1935. Phlegmone nach subkutaner Injektion; (Cellulitis as the Result of a Subcutaneous Injection). *Tierärztl. Rundsch.*, 41:40, pp. 649-51.

[73] Witzigmann, J., 1935. Die Diät beiden Nierenerkrankungen des Hundes; (Diet in Canine Nephritis). *Münch. Tierärztl. Wochenschr.*, 86:27, pp. 313-15.

[69] Lerena, C. A., 1934. "Cacho Hueco"; (Report of a Cattle Disease in Venezuela). *Revista Zootecnica,* (Buenos Aires), No. 230, pp. 6-10.

[70] Hustede, 1935. Die Hormonbehandlung der Nachgeburtsverhaltung bei der Stute; (Hormon-Therapy of Retained Placenta in Mares). *Deutsche Tierärztl. Wchnschr.*, 43:25, pp. 385-86.

birth in six mares within time intervals ranging from ½ to 1½ hours. In one mare the afterbirth was not expelled until after 13 hours. The injection does not produce any harmful effects. This treatment can be employed as early as six hours following foaling.

BCG UNSUCCESSFUL IN POULTRY

Testing the safety factor and the efficacy of the BCG vaccine for poultry, Abels found[71] that the avian BCG does not protect poultry against tuberculosis. The experiments confirmed the well-known observation that poultry possess a certain natural resistance toward tuberculosis. Pullets as well as chickens are refractory toward an artificial peroral and perenteral infection with tuberculosis germs to a considerable degree. The infrequent and late development of tuberculosis lesions in chickens after exposure to infection, and the slow progress of the tuberculosis lesions toward the carrier stage, in which bacteria are excreted, furnishes an explanation for the well-known fact that on farms where the flock are replaced either yearly or at least every two years, tuberculosis is unable to gain a foothold.

ABORTION PRIMARILY DUE TO CIRCULATORY DISTURBANCE

Catarrhal conditions of the uterus of high producing cows have their cause in circulatory disturbances of the uterine walls.[74] This circulatory dysfunction leads to imperfect involution and incomplete closing of the cervix. The various ovarial diseases are other sequels of the catarrhal condition of the uterus. In many cases, the circulatory dysfunction is the sole cause of the non-conception and of the return of the estrus period, because the lactation hyperemia counteracts the estrus hyperemia, and impairs the preplacentary nutrition of the embryo. In these cases catarrhal changes in the uterus are entirely absent.

Abortion can be explained by the same train of reasoning. The placentary function is sufficiently strong to last a few weeks or months, but if the vessel walls of the maternal placenta are in a condition of slackness, and if the blood pressure in the vessels is low, then, in the course of time, the gas exchange and the transudation to the fetal capillaries and to the villi of the chorion will suffer, and finally the entire placentary capillary system will collapse, resulting in the abortion. Wille is of the opinion that the Bang bacillus is not the primary cause, but a contributory factor, especially when the vascular system of the placenta does not function.

The foregoing reflections lead to a definite therapy, the "hyperemia therapy." The genital organs, and especially their vascular system, react strongly to any given stimulus. Even a slight stimulus will suffice to cause a pronounced hyperemia. The value of an infusion of potassium iodide into the uterus lies less in its disinfecting action then in its regulatory action upon the vascular system. Excepting cases of severe pyometra, the result will be the same if one changes the treatment to painting the cervix and the vault of the vagina with 10% tincture of iodine. The regulating action of a single application is so lasting upon the vessels and the circulation that the succeeding estrus hyperemia will show an entirely altered character. The explanation is that the blood vessels change from a state of atony and decreased blood volume to one comparable to the state of reflectory fluxion during the estrus period. As soon as the circulatory apparatus has become adjusted to a vigorous estrus fluxion, then the derangement caused by the involution will be overcome long enough to enable conception.

A prerequirement is that the hyperemia therapy be made to act in the region of the arteria uterina media and its anasto-

[71] Abels, H., 1935. Zur Frage der Tuberkuloseschutzimpfung mit BCG. Prüfung der Unschädlichkeit und Wirksamkeit beim Geflügel; (The Problem of Vaccinating Poultry with BCG). *Tierärztl. Rundsch.*, 41:31, pp. 497-501; 41:32, pp. 515-18.

[74] Wille, R., 1936. Die Sterilitäts und Abortus—Bekämpfung beim Rinde im Lichte biologisch-tierzüchterischer Betrach-tungesweise; (Newer Conceptions in the Treatment of Sterility and Abortion). *Tierärztl. Rund.*, 42:2, pp. 23-27; 42:3, pp. 48-51.

moses with the arteria uterina posterior. It is entirely useless to place the stimulus in the vestibule of the vagina, because here the action is solely upon the arteria uterina posterior.

The goal of this hyperemia therapy is primarily to prevent inanition due to involution and the consequent effect upon the uterus and the ovary. To accomplish this the first coat of tincture of iodine must be applied not later than the third or fourth week after parturition to all cows which have exhibited weak sexual desire. The purpose of the therapy is to act as a counterpoise against the lactation hyperemia, with resultant improvement in the process of involution. A second application of iodine is indicated on the second or third day after coitus, to induce improvement in the capillary circulation in the uterine mucosa.

PEST DESTROYERS

The employment of metallic phosphorus compounds constitute a definite step forward in the successful fight against injurious rodents.[75] On account of the poisonous nature of the preparations it is obvious that they must be handled with due care and precaution; they should never be exposed on the surface of the ground, but must be put into the burrows underground. The use of metallic phosphorus compounds will materially lessen the number of carriers of dangerous bacteria among mice and rats.

SEROLOGICAL EXAMINATION SUPPLANTS LABORATORY ANIMALS

Paarmann[76] describes a technic by means of which the use of experimental animals is curtailed considerably in favor of serological examination of milk and blood samples. He found that when the serological examination of blood samples is positive in at least two antigen vials, and when the milk samples from at least one quarter is positive too, then the presence of a tubercular mastitis is highly probable. When the examination of a blood specimen was positive in one antigen vial, and when the milk sample from one quarter was likewise positive, then the presence of a tubercular mastitis is probable. When either the examination of a blood sample was positive in at least one antigen vial, or when the milk samples from at least one quarter were positive or suspected, then the existence of a tubercular mastitis must be considered possible. For the confirmation of the diagnosis, the finding of tubercle bacteria is required. When the examination of the blood sample and of all four milk samples has been negative, then the diagnosis of tubercular mastitis can be excluded. However, even when the samples of milk from a three-teated cow are negative serologically, the milk must still be examined bacteriologically.

ULTRA SHORT WAVE THERAPY

Hintersatz[77] has used the ultra short wave therapy during the past six years on 120 horses and dogs, with gratifying results. The ultra short waves (6 meters) produce warmth in the animal body and thus produce therapeutic effects of vast range and depth, the more so since the ultra short waves penetrate poor electric conductors, such as fat and bones, in contradistinction to diathermy. Advantages of the ultra short-wave therapy are the economy of operation, the neatness of the treatment, the simple and noiseless manipulation of the apparatus, the elimination of assistance, safety for the operator as well as for the patient, the ease with which even unruly patients submit to the treatment, the shortening of the duration of illness, and the speeding up of recovery of obstinate cases.

[75] Schmidt, H. W., 1936. Nene Wege in der Nagerbekämpfung durch Metall phosphorverbindungen; (Progress in the Fight Against Rodent Pests). *Tierärztl. Rundsch.*, 42:1, pp. 10-12.

[76] Paarmann, E., 1936. Feststellung der Euter tuberkulose durch Komplement bindung und den Tierversuch; (Diagnosis of Tubercular Mastitis by Means of Complement Fixation and Animal Experiment). *Tierärztl. Rundsch.*, 42:1, pp. 1-4.

[77] Hintersatz, 1936. Die Ultrakurzwellen therapie in der Veterinär medizin; (Ultra Short Wave Therapy in Veterinary Medicine). *Deutsches Tierärzteblatt.*, 3:6, p. 135.

SWAMP FEVER RESEMBLING DOURINE

The clinical examination[78] of a 3½-year-old charger disclosed the presence of fever, a blood count of 2,160,000 erythrocytes, 8,200 leucocytes, 8.9% lymphocytes, 3.3% monocytes and 87.6% polynuclear leucocytes. The mercury bichloride test was still positive at a dilution of 1:200,000; the pulse was irregular; the heart beat between 52 and 60. There was a peculiar desquamation over the entire skin. The mucous membranes of the cavities of the head exhibited petechia; the vagina showed sugillations. The intermaxillary lymph glands were greatly enlarged, lobed, and movable. The region of the abdomen was edematous. Around the eyes and the opening of the mouth, the hairs and the pigment of the skin were absent. Loss of pigment was also noticed in the region of the anus and the vagina. Examination of the blood and vaginal discharge was negative for trypanosoma. The inoculation of laboratory animals and the complement fixation test also ruled out trypanosomiasis. The subsequent postmortem examination of the horse confirmed the clinical diagnosis of infectious anemia.

CULTURE OF TRICHOMONADS

An improved method[82] for culturing trichomonads is as follows: Pyometra pus, containing trichomonads in pure culture, is collected in a large flask. From 2% to 3% of chloroform is added to it, and the bottle is then lightly stoppered and stored at a low temperature, protected from light, for at least two weeks. After that, the liquid pus is filled in tubes, to which is added a layer of sterile paraffin oil. Now the tubes are put in a waterbath of 50°C. and transferred under a vacuum bell jar. The air, and with it the chloroform is gradually pumped out, this is accomplished when the foaming of the liquid ceases. Finally, the tubes are transferred to an incubator. Inoculation of the tubes is best made by means of a pipette. The trichomonas containing material is deposited just beneath the paraffin layer. The withdrawal of the material for examination is made from the layer just above the sediment.

X-RAY THERAPY IN ACTINOMYCOSIS

Roentgen treatment of primary and secondary skin actinomycosis gives very satisfactory results. A sufficient amount of intensive radiation of the entire actinomycotic area, without damaging the surface of the skin, is a prerequirement for success. The streptotrichosis of the skin of dogs and cats is also very responsive to x-ray therapy. The author[79] treated eight dogs and six cats. In all cases the clinical diagnosis was confirmed by microscopical and cultural tests. The seat of the lesions in the dogs were the ears, the parotid region, the lateral chest, the forearm, the inguinal region, the femur and the outer side of the hock joint. The internal medication with potassium iodide economizes on the number of x-ray treatments required.

THE TREATMENT OF CANKER IN HORSES

In pododermatitis verrucosa chronica there exists a hyperexcitability of the vagus nerve, complicated with a lack of calcium and an excess of potassium. This condition requires for treatment, according to Ariess,[83] a tuning of the body by the parenteral route, in order to provide for increased action on the part of the sympathetic nervous system. A cure, embodying these requirements has been found in "coryvet," a proprietary preparation, containing calcium bromate, strontium iodate, iron, arsenic, dextrose and digitalis. This combination acts not only as a tonic upon the sympathetic nervous system, but

[78] Wirth, D., 1936. Infektiöse Anämie-Beschälseucheverdacht; (Infectious Anemia Simulating Dourine). *Wiener Tierärztl. Monatsschr.*, 23:4, pp. 104-07.

[82] Diernhofer, K., 1936. Ein Nährboden zur Zuchtung der Uterus-trichomonaden des Rindes; (Medium for the Culture of Trichomonas Bovis). *Wien. Tierärztl. Monatsschr.*, 23:4, pp. 107-09.

[79] Pommer, A., 1936. Roentgentherapie der Hautkrankheiten bei Hunden und Katzen, XII, Aktinomykose und Streptotrichose; (X-Ray Therapy of Actinomycosis and Streptotrichosis in Dogs and Cats). *Wiener Tierärztl. Monatsschr.*, 23:2, pp. 36-44.

[83] Ariess, L., 1935. Die Pododermatitis verrucosa chronica. *Berl. Tierärztl. Wchuschr.*, 51:50, p. 799.

also upon the endocrine system. The local treatment consists in the application of "cancerex," a proprietary paste containing zinc acetate, copper nitrate, lead sulphate and arsenious acid. Its local action is cauterizing, crust-forming, disinfecting, hyperemia producing and resorption stimulating.

TRICHOMONAD ABORTION

Abortion from trichomonas infection takes place usually within six to twelve weeks after impregnation.[80] Benesch reports a case in which abortion took place after seven months of gestation. The examination of the abdominal fluid and of the stomach contents revealed the presence of numerous trichomonas. It is thought that the late abortion was due to the fact that the protozoa afer being transmitted during coitus, developed abnormally slowly in the beginning, without disturbing the growth of the fetus. The expulsion of the fetus was brought about by the loosening of the connection between the cotyledons and the caruncles, as a result of the inflammatory exudation.

SIMILARITY OF RABIES AND DISTEMPER

Rabies as well as the nervous type of distemper are caused by functional disturbances of the central nervous system.[82] The course of both diseases shows either identical or very similar symptoms. Among 41 cases of nervous distemper under observation, Nörr found symptom complexes, reminiscent of rabies. Of the animals which were held for treatment, 15 showed masticatory spasms, accompanied by salivation and foaming at the mouth; eight showed morbid desire to bite; one showed strong desire for automutilation. Of the eight vicious dogs, one was boldly aggressive and bit at any object in sight. A dachshund, otherwise harmless, exhibited a desire to bite; later paralysis of the lower jaw set in, a symptom, strongly indicative of rabies, but treatment resulted in complete recovery. Difficulty in differentiating these two diseases should hardly arise in a veterinary hospital, when there is time for prolonged observation. But it is different when a decision has to be made quickly in order to execute the necessary veterinary police measures.

NEW OBSTETRIC INSTRUMENT

Scheunpflug[81] describes a new crutch-shaped spiral embryotome, possessing several interchangeable parts, making it possible to convert it into an embryotome having either a ball point, or an acuminate point, or a claw point. The pointed embryotome and the claw embryotome are used to sever the skin from the subcutis. Each of the three instruments facilitates putting the saw in position and insures steadiness. Since the instrument occupies little space, due to its spiral shape, its indication is especially for narrow genital passages.

TRICHINOSIS IN DOGS AND CATS

Dogs and cats, especially young ones, are easily infected by eating small numbers of trichinellae.[83] Mature dogs of the smaller breeds are likewise easily infected by feeding relatively small numbers of trichinae. All the juvenile and the mature dogs and cats which were fed 100 non-capsulated muscle trichinae each, succumbed to trichinosis. Evidently, the gastric juice of these carnivores does not exert an injurious effect upon the non-encapsulated trichina. Nursing puppies and kittens are more susceptible to trichina infection than mature ones.

[80] Benesch, F., 1936. Über einen seltenen Fall von Trichomonaden-abortus beim Rind; (An Unusual Case of Trichomonas Abortion in a Cow). *Wiener Tierärztliche Monatsschrift*, 23:2, pp. 33-35.

[81] Scheunpflug, 1936. Fortschritte in der Drahtsägen embryotomie; (Improvement in the Construction of a Wire-Saw Embryotome). *Tierärztl. Rundsch.*, 42:1, pp. 4-10.

[82] Nörr, Jr., 1935. Über tollwutverdächtige Erscheinungen by der rogenannten nervösen Staupe des Hundes; (Rabies-like Symptoms in Nervous Distemper in Dogs). *Münch. Tierärztl. Wchuschr.*, 86:45, pp. 529-31.

[83] Matoff, K., 1936. Die experimentelle Muskeltrichinellose beim Hunde und bie der Katze; (Experimental Muscle Trichinosis in Dogs and Cats). *Tierärztl. Rundsch.*, 42:5, pp. 86-91; 42:6, pp. 106-10.

Book Reviews

Parenteral Therapy. A Ready Reference Manual of Extra-Oral Medication for Physicians, Dentists, Pharmacists, Chemists, Biologists, Medical Students, Nurses and Veterinarians. By Walton Forest Dutton, M. D., Director, Medical Research Laboratories, Amarillo, Texas, Colonel, Medical Officer's Reserve Corps; and George Burt Lake, M. D., Editor, Clinical Medicine and Surgery, Colonel, Medical Officer's Reserve Corps. 384 pages, 90 illustrations. Charles C. Thomas, Springfield, Illinois and Baltimore, Maryland, 1936. $7.50.

This is a new book on extra-oral medication, a subject quite attractive to the veterinary clinic of this day. Although written exclusively for the physician and surgeon, one of the opening paragraphs points out that the "physician, dentist, nurse, veterinarian and pharmacist" comprehend the importance of this type of medication and they alone possess the knowledge required to employ it successfully. Its technique is delicate, even intricate and its indications circumscribed by biological conditions ignored with impunity in medication given by way of the stomach.

The work is a compilation. No originality is claimed. Its object is to bring together known facts and current practices for convenient reference. It is divided into four parts: (1) General Technique of Parenteral Therapy; (2) Therapeutic Index; (3) Therapeutic Notes, and (4) Pharmacologic Index.

Part I is consecrated to the minute details of the standard procedures of human medicine. While not especially useful to the veterinarian, it contains the generalities those practicing parenteral medication should know well before stepping rudely into that field. "Any given drug on one kind of animal cannot, without reservation, be applied to other animals," is an extremely important remark. This one statement shows the authors' fine understanding of pharmacodynamics, a knowledge that must always underly scientific animal medicine, for therein lies a principle that distinguishes good from poor veterinary therapeutics. Even the rat and the mouse do not react the same to morphine, nor do any of the nervine group react precisely the same in the different species. In pointing out the variant dynamics of drugs given in different ways, an example cited is the paralyzing action of small doses of magnesium sulphate given parenterally contrasted with the action of the same saline when given by way of the digestive tract. Moreover, parenteral medication requires closer attention to the duration of drug action, the speed of delivery, sensitization and habituation, condition of the individual recipient, and the physical and chemical properties of the drug or other substance injected, not to mention the viscosity and chemistry of the blood and state of the emunctories.

The selection of syringes and needles for each procedure, their preparation and care, are shown to be precautions of outstanding importance in intradermal, hypodermic, intramuscular, intraperitoneal and intravenous work. Only glass syringes are employed. None other is countenanced in medical practice. High quality of needles is paramount. A needle broken in the tissues may be a veritable catastrophe which can be avoided by selecting quality needles and by careful technique. The infusion of normal salt solution for various purposes and given in various ways is a subject well covered in a manner that is attractive to the animal doctor familiar with this type of emergency intervention.

The chapter on intravenous medication points out the indications, contraindications, pitfalls and specific directions in a fashion illustrating how unwise it is to practice blindly in this field. The rules governing safe intravenous medication are enumerated, together with the products ordinarily used. "Some men do not possess a certain tactile sense which is necessary to do this operation successfully," is a stated fact all will confirm. Everywhere the authors emphasize the importance of preventing "speed shock," an accident entirely too frequent in animal medicine since intravenous medication came into more general use. In this respect too many veterinarians are rude and reckless.

In phleboclysis, the rate of infusion is particularly significant. Its use in circulatory insufficiency, ketosis, blood loss, sepsis, surgical shock, peritonitis, toxemias, dehydration, poisonings, etc., is described. "Citrated blood must be maintained at body temperature and administrated immediately after completion of the mixture," is a warning the veterinarian needs. One whole chapter is devoted to the transfusion of whole and citrated blood. Here, the rules governing blood types, which do not materially concern veterinary medicine, indicates the delicacy of that practice in human medicine. This chapter describes the apparatus and methods in current use. A fact not generally known in the veterinary circle is that in the intramuscular injection of whole blood, typing is not necessary.

As of current usage, the chapters on pneumothorax, intraspinal injections and cisternal puncture are of academic interest only. On the contrary, the ones on intravenous and infiltration anesthesia are of paramount interest in every detail presented. The barbital derivatives are not recommended as surgical anesthetics *per se*. Of Nembutal, which is widely employed in the small animal clinic, the authors say: "This drug is not recommended as an anesthetic by the manufacturers though it has been used with as great a safety as other similar preparations . . . the dose is given half an hour before the operation or anesthesia. . . . Intravenous anesthesia is efficient in selected cases but has not been generally used because of the risk of embolism and thrombus . . . and because the control of the anesthetic agent is lost after the injection into the vein."

In the chapter on infiltration anesthesia one learns that epinephrin "does not minimize the toxicity of the anesthetic solution and if too strong can cause sloughing," a fact that is none too well known. By its use, growths can be blocked off effectively and safely and its indications are unlimited.

The chapter on epidural anesthesia recalls the points in which the procedure differs from that now commonly employed in the veterinary clinic. The injection is made upward through the *hiatus finalis sacralis* instead of through the sacro-coccygeal or intercoccygeal portals. It has definite limitations in human medicine because of faulty injections, which may be due to anatomical variations, well known to exist also in animals, beginning the operation too soon, the use of stale solutions, and "uncooperative patients."

The treatment of spinal anesthesia, alcohol block and local injections to control pain are likewise of academic interest only in veterinary medicine, although the paragraph on "Injections into joints and into synovial sheaths" is a method that has been employed to a certain extent in France for the diagnosis of lameness in horses. The injection treatments of hernia, varicose veins, hydrocele, and hemorrhoids are all extra-veterinary subjects. Ionic medication, to which a long chapter is devoted, is a question to be approached with an open mind in regard to its importance in veterinary medicine. It is an unused, virgin procedure with a scientific background that would seem to have plenty of worth-while indications in animals. Dissociating the ions of a solution of electrolytes and causing them to migrate into the tissues by means of an electric current is a procedure that may have considerable value in animal medicine, although the dream of deep penetration has not come to pass.

Part II, or Therapeutic Index is a lexicon of diseases wherein parenteral medicine is practiced. The medicants employed are given for each disease named. This section adds nothing to the educational value of the book unless listing remedies that are "good for this" and "good for that" is still so regarded in human medicine.

Pharmacologic Notes is an index of several hundred drugs, many of them specialties, used parenterally. Here, the product, its action, doses and uses are described. The recommendations of this section may prove dangerous for veterinarians. Several of the compounds recommended for local use (intramuscular) are dangerously irritant and necrotizing to animal tissues in the dilutions given. Otherwise, this section

adds materially to the value of the book as a reference.

The list of the manufacturers and distributors in the "Addenda Section" detracts from the dignity of the work. The illustrations are excellent, the diction somewhat cumbersome, and the capitalization inconsistent and annoying. One finds "Novocain" and "novocain," "Nembutal" and "nembutal," "Intravenous Anesthesia" and "infiltration anesthesia" etc., throughout the text, where no reason exists for changing such words from proper to common nouns and vice versa.—*L. A. M.*

The Mind of the Dog. By F. J. J. Buytendijk, Professor of Physiology, University of Groningen, Groningen, Netherlands. Translated by Lillian A. Clare. 221 pages, cloth bound. Houghton Mifflin Company, Boston, 1936. $2.50.

Many published works have appeared on the subject of animal behavior; most of them intended solely for those deeply interested in the study of psychology. The weighty technicalities of this type of literature frightened away many interested in the subject who cannot devote the time required to delve into massive expositions which deal with everything from insects to elephants. "The Mind of the Dog" will prove refreshing by contrast, and helpful to the small animal practitioner in particular. It causes the reader to review some of his own observations and furnishes an incentive to correlate them. He will find that this is a noteworthy review of the psychological side of the dog without detouring over the roads of controversy. The author's task was lessened by his wide personal experience with animal experimentation so that he was enabled to evaluate the work of others. He expresses his speculations in an easy literary style—the goal of true scientific writing. He answers many questions in relation to the dog's instincts, sense of smell, perception of form, hearing, experience and insight.

Psychiatry may never be used to any great extent in animal practice—as yet it is not fully recognized in human medicine. It is to be expected, however, that a veterinarian should possess some knowledge of the physiology which relates somatic function to mentation. One emotion—fear—in an animal patient has the effects of producing increased pulse rate and blood pressure, increased sugar and epinephrine in the blood; decreased coagulation time, increased muscular tone, motor activity and restlessness; deep and rapid respiration; dry mouth; pilomotor and vasometer activity; defecation, urination, and gastric immobility. It is regrettable that the author, who is a physiologist, does not touch upon this angle in his study. He quotes the experiments of Pavlov and his students, but these cover only superficially experience and insight. Emotions of such wide influence as fear should be studied for the conditions under which they occur, the factors which determine them, the manner of control, and methods of prevention. It is not only a question of knowing anatomy, pathology, biochemistry, physiology, endocrinology or other basic sciences, but the understanding of them all contributes to success in the practice of veterinary medicine.—*H. J. Mostyn.*

British Medical Films. A Catalogue of British Medical Films of Technical Interest to Medical Practitioners and Students. 48 pages. The British Film Institute, 4, Great Russell Street, London, W.C.1, England, 1936. One Shilling.

This is a classified list of all the films on medical subjects available for loan or rent by the British Film Institute, with information as to the subject, author, width of the film, length, silent or sound, etc. Only two strictly veterinary films, "Operation for an Abdominal Cryptorchid," by Sir Frederick Hobday, and "Ventricle Stripping Operation" by the same surgeon, are included, but many of the others, such as for example, Canti's "Cancer Film," are of interest to veterinarians.

A Laboratory Manual for Milk Analysis and Control. By Glenn C. Holm, Department of Veterinary Hygiene, Iowa State College, Ames, Iowa, 1935. 42 pages, mimeographed.

As the name implies, this is a guide for laboratory tests of milk. In addition to brief general instructions and instructions for the collection of samples for examination, the technique for making the following tests is given: Determination of bacterial count; flavor and odor; acidity; sediment; scoring; butter fat determination; specific gravity, total solids and solids not fat; adulterations; detection of bacteria of the colon group, and detection of disease through milk examination (mastitis tests).

NEW VETERINARY GRADUATES

At the Ontario Veterinary College.—

V. K. AlagaRaju, Tiruvur, India
J. G. Anderson, Milford, Conn.
L. G. Anderson, Reading, England
G. N. Blum, Stratford, Ontario
L. E. Bodenweiser, Union, N. J.
W. C. Bovaird, Brampton, Ont.
H. W. Brooks, East Troy, Wisc.
H. W. Cain, Guelph, Ontario
C. B. Dearborn, Jr., Belmont, N. H.
*R. L. Digman, Milwaukee, Wisc.
L. E. Estler, Chesterfield, N. H.
*D. E. Faulkner, London, England
*J. G. Gagnon, Dorchester, P. Q.
A. L. Geffert, Reedsburg, Wisc.
E. W. Gray, Carlisle, Ontario
J. G. Hamilton, Guelph, Ontario
J. A. Henderson, Winnipeg, Man.
K. G. Jackson, Walton, Ontario
N. N. Jerome, Mount Hope, Ontario
*J. E. Leeson, Guelph, Ontario
R. A. Lombard, Raymond, Maine
*I. W. Moynihan, Toronto, Ontario
J. McKay, Jr., Duluth, Minn.
H. R. McLean, Guelph, Ontario
K. B. Nair, Bombay, India
*J. A. Nelson, Vancouver, B. C.
*R. E. Pinkert, Grafton, Wisc.
*J. W. Pullin, Woodstock, Ontario
W. C. Ready, Fort Erie N., Ontario
W. M. Rice, London, Ontario
A. Richardson, Waterville, Maine
F. Rushton, Guelph, Ontario
M. H. Ryan, Erie, Pa.
R. E. Sargent, Brockville, Ontario
T. H. Spence, Dundalk, Ontario
J. A. B. Stewart, Guelph, Ontario
G. M. Stewart, Guelph, Ontario
S. N. Thompson, Virden, Man.
F. W. Timm, Arlington, Minn.
J. L. Topham, Pardeeville, Wisc.
W. A. Walker, Mitchell, Ontario
S. N. Ward, Agincourt, Ontario
J. D. Winn, Merrow, Conn.
H. Worton, Guelph, Ontario
*R. A. Young, Bolton, Ontario

At the New York State Veterinary College, Cornell University.—

Blumberg, David Leon, Brooklyn
Boyink, Gordon Darrow, Rochester
Briggs, Walter Solon, East Aurora
Brown, Robert Frederick, Bangor
*Burch, George Edward, Granville
Curtin, Charles Joseph, Livonia
Dufresne, Joseph Gustave, Montreal, Que., Can.
Friedman, Martin Harold, Brooklyn
Hults, Charles Edward, Marathon
Kinsey, Julia Gertrude Fisher, Ithaca
*Kriesel, Henry, Brooklyn
*Levesque, François Joseph Xavier, Mount Carmel, Que., Canada
Maxwell, Ralph Arnott, Salem
Metz, Clark Allen, Clarence Center
Milici, Rosario Francis, Brooklyn
Nathanson, Sidney, Brooklyn
Richman, Silas, Ithaca
Sachs, Hyman, Richmond Hill
Steiber, Sam, New York City
*Sweatman, John Chester, Cattaraugus
Taylor, Irving Wilson, De Kalb Junction
*Thomson, Frederic Bristol, Holland Patent
Ward, John Arthur, Hollis
Weaver, Glen John, Clarence
Weiner, Jules, New York City
*Williams, Walter Johnston, White Plains

At the Kansas State College.—

Charles Deferese Chase, Manhattan
Robert William Cook, Manhattan
Russell Parker Cope, Manhattan
Loris Arthur Dehner, Concordia
Mark Earnest Gale, Concordia
Robert Elmer Gouge, Manhattan
Thomas Clark Hinkle, Jr., Carbondale
Obed Keith Lassen, Manhattan
Sydney Paul Levene, Manhattan
Henry James Lindenstruth, Manhattan
Edward Nash McGrew, Manhattan
Edgar William Millenbruck, Herkimer
Edward Aloysius Murphy, Kansas City
Obed Edmund Myrah, Manhattan
Paul Talogi Nomura, Manhattan
Gopel Singh Rathore, Jodhpur, India
*Arnold Samuel Rosenwald, Manhattan
Horton Earl Ryan, Manhattan
Arthur Louis Tellejohn, Kansas City
Marvin John Twiehaus, Manhattan
*John Leslie West, Manhattan

At the Alabama Polytechnic Institute, School of Veterinary Medicine.—

Thomas Copeland Berry, Vina
Dwain Taft Bowie, Scottsboro
Andrew Franklin Clark, Andalusia
Charles Edward Cox, Auburn
Sylvan Dekalb Culver, Deatsville
Dwight James Dark, Alexander City
Charles Ferguson Davis, Thomasville, Ga.
Benjamin Walker Dean, Auburn
Albert Vernon Dixon, Quitman, Ga.
Eldred Walton Exley, Clyo, Ga.
Leo Landers, Mattapan, Mass.
Edgar Belton McKinney, Vina
Bernard Maloney, Independence, Mo.
Charles Dudley Price, Jr., Castleberry
Howard Bowen Smith, Pulteney, N. Y.
Hugh Dowd Smith, Conover, N. C.
Luis Alberto Sordo-Gonzalez, Habana, Cuba
Coleman William Tant, Auburn
Joseph Lewis Wesley, Talledega
Carlos Stanford Wilbanks, Clarkesville, Ga.
Thomas Glenn Wright, Chatsworth, Ga.

Those marked with an asterisk (*) have been awarded prizes.

U.S. Gov't says it's PURE!

AN ADDITIONAL GUARANTEE OF QUALITY

● **The name CHAPPEL on every can of Ken-L-Ration is your guarantee of the finest quality in dog food. As an added assurance of quality, Ken-L-Ration is U. S. Inspected and passed by the Department of Agriculture.**

As every veterinarian knows, not all canned dog foods are government inspected. The "U. S. Inspected" phrase on the can guarantees that the product does not contain diseased meat or other impure ingredients—stuff which is not merely unfit to feed the dog—but unsafe to bring in the home and place in the ice box!

Chappel Bros. created world-wide acceptance of canned dog food when they introduced Ken-L-Ration, the original canned dog food. It is made with fresh, lean, red meat and other wholesome ingredients. But the most important ingredient of Ken-L-Ration is the integrity of its makers.

You can recommend and sell Ken-L-Ration to your clients with confidence in its supreme quality.

Write for two illustrated booklets giving new facts about dog food.

CHAPPEL BROS. INC.

503 Peoples Avenue Rockford, Illinois

NEBRASKA CLINIC, OMAHA, NEB., JULY 13, 1936

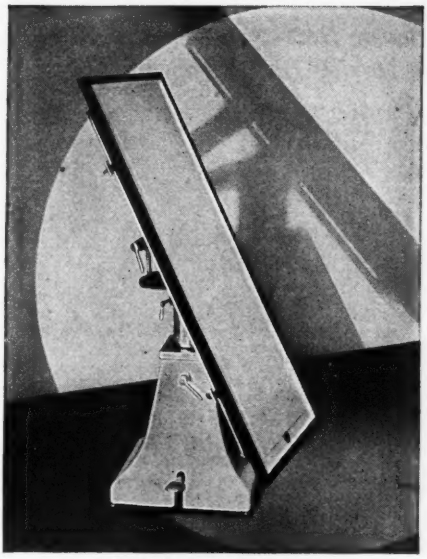
The annual clinic of the Nebraska Veterinary Medical Association will be held at Omaha, Nebraska, July 13th, beginning at 9:00 A.M.

Through the courtesy of the Board of Governors of the Ak-Sar-Ben Livestock Show, the facilities at Ak-Sar-Ben Field, 63rd and West Center Sts., have been made available for this clinic. Noon lunch will be served on the premises. Following custom, ladies are invited—special entertainment will be provided. A special invitation will be extended to all visitors to remain for the evening performance of the famous Ak-Sar-Ben Den Show.

Committee in charge: D. C. Scott, Tekamah; W. I. Nelson, Herman; F. C. Ziegenbein, Nebraska City; J. H. Copenhaver, Omaha.

N. Y. V. M. S. MEETING

The annual meeting of the New York State Veterinary Medical Society will be held in Buffalo, N. Y., July 16-17, 1936, with headquarters at the Hotel LaFayette. The program includes both large and small animal subjects, as well as research, and the clinic also will include both large and small animals.



STRASCO Hydraulic
SMALL ANIMAL TABLE
Priced at $87.50
R. J. STRASENBURGH CO., ROCHESTER, N. Y.
Manufacturers of TONAMINE

Their next food should be MILK-BONE

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Read why!

FOR thirty years Milk-Bone has helped build healthy dogs from puppyhood on. And for a very simple reason. Milk-Bone is made of good, clean beef meat, cereals and food minerals in the *proper* proportions. In addition, the hard, crunchy bone-shaped form of Milk-Bone gives dogs the kind of exercise their teeth and gums need. Nothing half-way about Milk-Bone! Get a package of this common-sense, all-round dog food from your dealer today!

FREE SAMPLE

Milk-Bone Bakery, National Biscuit Company,
Dept. L-736, 449 West 14th Street, New York.

Please mail me FREE Milk-Bone for my dog. Also free folder, "How to care for and feed your dog." (Print name plainly. Paste coupon on a penny postcard, if you wish.)

Name.....

Address.....

City and State.....

For Better . . . Faster . . .
Easier Dog Clipping

The NEW STEWART CLIPMASTER

New Easy-Grip handle only 2" in diameter

78% MORE POWERFUL

Veterinarians who have tested the new Clipmaster say it is the finest, fastest, easiest to use dog clipper of all time.

Clipmaster has powerful, air-cooled, ball bearing motor inside the special composition handle. Perfect balance for clipping in any position.

WHAT USERS SAY

"Got a compliment on every dog I clipped with Clipmaster."
"Paid for itself the first week I had it."
"Clipped 73 dogs without resharpening."
"Gave excellent service on 300 dogs last summer."

Clipmaster complete with 20 feet of cord, for use on any 110-volt A. C. or D. C., only $16.95. For other voltages $18.95. (Slightly higher West of Denver.) At your dealer's or send us $2.00. Pay balance on arrival. Write for catalog showing complete line of STEWART clipping and shearing machines. Made and guaranteed by Chicago Flexible Shaft Co., 5516 Roosevelt Road, Chicago, Illinois.

46 YEARS MAKING QUALITY PRODUCTS.

Dr. H. J. Finscher, aged 58, died at his home in Chicago, of pneumonia, May 12, 1936. Doctor Finscher had been in the Bureau of Animal Industry, assigned to meat inspection in Chicago, since 1917.

CALIFORNIA VETERINARIAN KILLED IN MOTOR CAR ACCIDENT

John A. Howarth, Davis, Calif., Associate in Veterinary Science in the University of California, died May 15 from injuries received the night before when his automobile turned over on a curve in the highway near Dixon, California. He did not regain consciousness. Burial was by cremation in Sacramento, California.

Doctor Howarth was born in Philadelphia, March 9, 1893. He received the B. S. degree in Agriculture at Kansas State College in 1921 and the D. V. M. from the same institution in 1923. He was a member of the veterinary faculty at Washington State College from 1923 to 1928. He came to Davis in 1928 and devoted most of his time to the study of sheep diseases. He was a member of the A. V. M. A., California S. V. M. A., Society of American Bacteriologists, and other societies. He belonged to the Masonic and Elk lodges.

He is survived by his widow, Mrs. Edith Howarth, two children, John and Dolores, his father and mother, and two sisters.

Behind MERCUROCHROME

(dibrom-oxymercuri-fluorescein-sodium)

H W & D *is a background of*

Precise manufacturing methods insuring uniformity

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Chemical and biological control of each lot produced

Extensive clinical application

Thirteen years' acceptance by the Council of Pharmacy and Chemistry of the American Medical Association

AMERICAN MEDICAL ASSN.

HYNSON, WESTCOTT & DUNNING, Inc., Baltimore, Md.

If you had the TIME... and OUR facilities,

YOU'D DEVELOP OUR Kind of Dog Food...

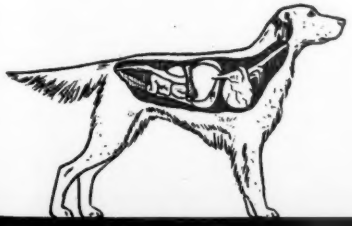
WITH your specialized knowledge of a dog's nutritive requirements for growth, maintenance and reproduction—you would build a Food very similar to Gaines Meat & Milk Meal.

However, your mixture would undoubtedly cost more than you pay for Gaines Food. Big buying power . . . low overhead . . . economy in selling . . . small profit per unit . . . enable us to give you beyond-the-ordinary value.

It will save you money in your hospital —it will make you money when sold to your customers. Always, it will be a Food which you can conscientiously recommend, secure in the knowledge that our formula has been biologically tested for four successive generations — and that every "mix" is also checked biologically.

The record of Gaines Food with veterinarians entitles it to your consideration.

FREE: Send a Post Card for Professional Samples. Moreover, to ONE in each community, we'd like to send details of our Veterinary-Dealer proposition.



GAINES Dog Food

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Box H-4, Sherburne, N. Y.
Send me professional samples of both Gaines Meat & Milk Meal and Gaines Krunchon. I am interested in your dealer's proposition.

☐ GAINES MEAT AND MILK MEAL COOKED — THE GRANULAR FORM

☐ GAINES KRUNCHON MEAT & MILK MEAL IN PRESSED FORM — THE PELLET FORM

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Address.....

A Friendly Place to Live
HOTEL
CHALMETTE
You really enjoy the true spirit of New Orleans when you stop at Hotel Chalmette, just a few blocks from historic Canal Street and within easy reach of all points of interest... Large comfortable rooms - low rates.
DAILY $1.50 WITH BATH... SINGLE
DOUBLE WITH BATH $2.50

NEW ORLEANS

Dr. Gordon Danks, formerly assistant on the faculty of the Veterinary Division of the Kansas State College, Manhattan, has accepted a position as assistant in surgery in the New York State Veterinary College at Cornell University.

* * * *

HORSES AND RIDERS

"Horses and Riders" is the name of a new pamphlet issued by the Horse and Mule Association of America. The pamphlet is beautifully illustrated and intended to answer many questions of those who contemplate taking up horseback riding for pleasure. It includes also much information for experienced riders and horsemen. The pamphlets may be had at 10 cents each, from the headquarters of the Association, 407 S. Dearborn St., Chicago.

Patton Biological Laboratories
Formulas - Consultation
Biological Testing
"Dog, Cat, Fox Food Exclusively"
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Address all correspondence to
DR. J. W. PATTON
P. O. Box 933 **E. Lansing, Mich.**

THE INJECTABLE ARSENICAL

ALTERATIVE, TONIC RECONSTRUCTIVE
ARICYL
Reg. U. S. Pat. Off. & Canada
Brand of ARSACTO

THE indications for Aricyl conform to those of arsenical medication in general. This preparation is remarkably rapid in its action and it is well tolerated locally and systemically. Aricyl is particularly valuable, in conjunction with topical application of Odylen, in the treatment of follicular mange and chronic eczema.

Aricyl may be administered subcutaneously, intramuscularly, or intravenously.

SUPPLIED:
For small animals—1 cc. ampules..Boxes of 10's
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Informative literature and prices on request.
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WINTHROP CHEMICAL COMPANY, INC.
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THIS TRADE MARK

NOW IDENTIFIES

TI·O·GA

DOG and PUPPY FOODS

[FORMERLY BALORATION]

To the many veterinarians who have been feeding and recommending Baloration, we wish to make it clear that the new TI-O-GA trade mark stands for the same product.

To veterinarians who are not now using TI-O-GA, either in their own practice, or as a source of supplementary income, we suggest careful investigation. In your professional capacity, it is decidedly important that your recommendations name the BEST the market affords.

We invite thorough analysis and comparative tests. A post card will bring you a copy of our booklet, "TI-O-GA Tests and Testimonials," which will furnish you with some of the essential facts concerning the biological research and facts that underlie the formulation of TI-O-GA Dog and Puppy Foods.

BALORATIONS, INC.
DIVISION OF
TIOGA MILLS, Inc.
Dept. M58, Waverly, N. Y.

HARLTON'S LIQUID BLISTER *and* FREE BOOKLET

Easy to apply. Saturate on with hand—no rubbing. Doesn't burn, set skin "on fire," kill hair, or scar. Head let down in few hours. No rest necessary in many cases. Vary application to produce just degree of counter-irritation needed. Diluted with oil, makes any strength liniment desired. FREE SAMPLE—a $1.00 bottle sent free postpaid upon request if you have never had one . . . . treats several cases. It doesn't pay to be without this convenient, effective and economical preparation; write for sample or mail order today. 4-oz. size, $1.00; 16-oz., $3.00.

Detroit Veterinary Supply Co.
460 West Jefferson Avenue, Detroit, Michigan
Canadian Branch, 139 Sandwich St., Windsor, Ontario

S. C. V. M. A. MEETING

The South Carolina Association of Veterinarians will hold their summer meeting at the Claremont Hotel, Sumter, S. Car., July 6-7, 1936.—R. A. Mays, Columbia, Sect.-Treas.

VETERINARIANS ABSENT

Dr. F. T. Rupert, optometrist, Anthony, Kansas, recently spoke before the Lions Club of his city on dogs. During the following days, he was besieged by inquiries about the care and feeding of dogs. Unfortunately, the nearest veterinarian was located 75 miles away.—*Dog World.*

A REMARKABLE MAGAZINE

The "Dogs of all nations issue" of the *Dog World* (June 1936) is a noteworthy issue even for this magazine, that routinely does big things in its field. This special issue contains 160 pages filled with information and news concerning the dog industry. Veterinarians will be delighted with the large (folded) Dogs-of-All-Nations Map and the very excellent article, "Breeds of All Nations in Picture and Story," wherein is described and illustrated all recognized breeds of dogs throughout the world. The price of this issue is 50 cents.

FOR HEAT EXHAUSTION

and its after effects

Norden Certified

GLUCOSINE
COMPOUND

Contains C.P.Glucose 10% with salts of sodium and potassium in suitable physiological solution for the much desired large volume tonic dosage.

Overcomes the uncompensated acidosis usually present in heat stroke. Use it in combination with usual treatment for reducing temperature. Produces dramatic results.

Six 450 cc. - $3.50

(See page 143, new Norden catalog.)

Norden Certified

SUDOCARPINE
COMPOUND

A new well balanced sudorific to induce sweating. Increases capacity for work.

Contains pilocarpine, arnica, digitalis, sodium acetate, and alcohol. Increases peripheral circulation and stimulates sudoriferous glands.

Pint, $1.50 - Gallon, $9.00

(See page 130, new Norden catalog.)

NORDEN LABORATORIES
LINCOLN · NEBRASKA

The Story of HERO DOG FOOD

TRADE MARK REGISTERED

is of interest to Veterinarians

BECAUSE the HERO formula was developed to properly nourish the dog, not to provide an outlet for the by-products of a meat-packing plant . . .

Because HERO is *biologically-tested* in a nationally-known laboratory . . .

Because HERO contains 86% protein; to our knowledge this is the highest protein content of any commercial food . . .

Because HERO contains Vitamins A, B, D, E, G . . .

Because HERO is always fresh, sold only in dated cartons . . .

For free copies of chemical analyses, biological reports, etc., write: BAKERS BRANDS, INC., 2111 Olive St., St. Louis, Mo.

HERO Advertisements feature the Veterinarian

Each HERO advertisement addressed to dog owners features sound veterinary advice. A recent excerpt: "Have your dog examined regularly by your veterinarian. Keep him healthy. No food, however good, will cure a canine disease . . ."

Contains These Ingredients in Adequate Proportions

Beef	Wheat Grain
Cod Liver Oil	Beef Bone
Vegetables	Milk Minerals
Wheat Germ	Salt
Iodine	Irradiated Yeast

ARMY VETERINARY SERVICE

So much of S. O. 38 as assigns Major Charles O. Grace to duty at Lexington, Ky., is revoked. Major Grace is relieved from further assignment and duty at Fort Benning, Ga., and directed to proceed to Fort Reno, Okla., and report not later than June 30, 1936, to the commanding officer, Reno quartermaster depot, for duty.

Major Raymond T. Seymour is relieved from assignment and duty at the Robinson quartermaster depot, Fort Robinson, Neb., effective on or about August 1, 1936, and will proceed to Madison Barracks, N. Y., for duty.

"Dejem"

CANINE DISTEMPER COMPOUND

"Dejem" is decidedly beneficial to dogs with DISTEMPER. It also controls the severe sickness following inoculations.

"Dejem" 16 oz. size, 1 bot.....$ 2.75
3 bot. .....$6.75, 6 bot.....$12.00

Mangan & Co., Laboratories
294-298 E. 161st St. New York

FISTONE

In such cases as Fistulous Withers, Catarrhal Metritis and Chronic suppurative affections due to internal focal infections, nothing has proven so successful as Fistone.

Used by leading veterinarians the world over for more than a quarter of a century.

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THE FISTONE AND APPLIANCE COMPANY
College Corner, Ohio

Trial Order—One dozen boxes (once only).....$ 8.00
Regular Price one dozen boxes..... 10.00
One-half dozen boxes..... 5.00

Dr.....

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HISTORY IN THE MAKING

LIVE DOGS ON A BILLBOARD!

LIVING IN THE AIR-CONDITIONED "WILSON IDEAL" DOG HOUSE
Michigan Ave. at Delaware, Chicago

See the pedigreed dogs enjoying the comforts of living under "ideal" conditions and dining on Ideal Dog Food.

"Ideal" is a dog food scientifically proportioned and is U. S. Inspected and passed. Made up of seven major ingredients, it is completely BALANCED for dog health and growth.

You can safely recommend Ideal Dog Food. It is biologically tested.

Ideal DOG FOOD WILSON & CO **Ideal DOG FOOD**
U. S. Yards, Chicago

Dr. Naylor's Medicated Teat Dilators

A safe and dependable treatment for Spider Teats, Scab Teats, Cut and Bruised Teats, Obstructions and for keeping teat canal open after operating.
Dr. Naylor Dilators fit either large or small teats without overstretching or tearing, are easy to insert and stay IN the teat. They carry antiseptics and healing agents into teat canal to combat infection and promote healing. The dilators themselves are Sterilized, Soft, Absorbent dressings which protect the inflamed area, absorb inflammatory exudates and keep teat canal open in its natural shape while tissues heal.

Price to Veterinarians

Dollar Package (contains 48 Dilators).....$8.00 Per Doz.
Fifty Cent Package (contains 18 Dilators)..... 4.00 Per Doz.
←Plain Dispensing Package (contains 15 Dilators)..... 3.00 Per Doz.

H. W. NAYLOR CO. MORRIS, N. Y.

Colonel John A. McKinnon is relieved from further assignment and duty at Fort Riley, Kan., effective on or about August 1, 1936, and will then proceed to Fort Bliss, Tex., and report to the commanding general for duty.

Colonel Burton A. Seeley is relieved from duty at Fort McPherson, Ga., and additional duty at headquarters, Fourth Corps Area, Atlanta, Ga., and will report to the commanding general, Fourth Corps Area, Atlanta, Ga., for duty with the Veterinary Corps at his headquarters, and additional duty as attending veterinarian, Fort McPherson, Ga.

Major George J. Rife is relieved from further assignment and duty at Fort Benning, Ga., effective on or about August 15, 1936, will then proceed to Ft. Leavenworth, Kan., and report to the commanding general, for duty.

Lt. Colonel Jacob E. Behney is relieved from duty at Fort Myer, Va., effective on or about August 1, 1936, will then proceed to Fort Riley, Kans., for duty.

Major James R. Sperry is relieved from duty at Madison Barracks, N. Y., effective on or about August 1, 1936, will then proceed to Fort Myer, Va., and report for duty.

Major Seth C. Dildine is relieved from assignment and duty in the office of the Surgeon Gen-

Complete Official Proceedings of the

Twelfth International Veterinary Congress

Are Now Ready

Published in 3 Volumes (1,500 pages) dealing with new developments in:

Relationship of Veterinary Science, Animal Breeding, and Public Health.
Meat and Milk Hygiene.
Research on Filtrable Viruses.
Infectious Abortion (Bang's Disease).
Tuberculosis Eradication and Prevention.
Foot-and-Mouth Disease.
Hog-Cholera Prevention and Control.
Gas Edema Diseases.
Paratyphoid Diseases.
Equine Encephalomyelitis.
Diseases of Young Animals.
Progress in Veterinary Surgery.
Parasitic Diseases.
Poultry Diseases.
Animal Breeding and Dietetics.
Deficiency Diseases.
Infectious Anemia (Swamp Fever).

and others.

The volumes also include: List of more than 3,000 members, radio addresses, resolutions, and descriptions of clinic and special features.

$5.00 postpaid

H. PRESTON HOSKINS, GENERAL SECRETARY, 221 N. LA SALLE STREET
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Classified Advertisements

For Sale, Wanted, etc., $2.00 for 25 words or less; additional words, 8 cents. 25 cents extra when replies are sent in care of VETERINARY MEDICINE.

NOW READY—2nd edition Judy's Dog Encyclopedia, 464 pages; $5.00 cash or C. O. D. Dog World subscriptions, $2.00 one year; $3.00 two years. JUDY PUBLISHING COMPANY, 3323 Michigan Blvd., Chicago.

WANTED: Position as assistant for small animal hospital. Will go anywhere. Married; 34 years of age; reliable; steady. Address No. 141, care of VETERINARY MEDICINE.

FOR SALE: By Widow, hospital, instruments, new seven-room brick home, located in good hog and dairy country in Southwestern Wisconsin. An opportunity of a lifetime. Act quickly. Address: Mrs. J. F. Kennedy, 924 Eleanor St., St. Paul, Minn.

WANTED: Recently graduated veterinarian, as assistant in a small animal practice. Please state age, character of training and experience, in writing. Address No. 144, care of VETERINARY MEDICINE.

JUST OUT: New, second edition of Udall's Practice of Veterinary Medicine. $5.00, prepaid. Veterinary Magazine Corp., 75 E. Wacker Drive, Chicago, Ill.

WANTED: Young graduate veterinarian seeks assistantship. Single. Willing to work. Can furnish references if required. Address No. 145, care of VETERINARY MEDICINE.

(*Continued from Page XXI*)

eral, Washington, D. C., to take effect on August 24, 1936, is then assigned to station at the New York port of embarkation, Brooklyn, N. Y., will proceed to Carlisle Barracks, Pa., and report to the commanding general for temporary duty until about December 19, 1936, and will then proceed to Brooklyn, and report for duty accordingly.

Lt. Colonel Clifford C. Whitney is relieved from duty at Fort Clark, Texas, effective at such time

Periostine

Horse Back To Work in Three To Five Days

It is a powerful antidote to inflammation occurring in the periosteum, articulations, bursæ, tendons, ligaments; also where there is pain, exostosis or lameness. Usually only one application is necessary. One bottle is sufficient to treat three or more cases.

Endorsed by almost every veterinarian that has given it a trial.

FREE Booklet—"Reminders in Diagnosing Obscure Lameness."

Price per bottle..$2.00
Three bottles 5.00

Free Sample. To Every Veterinarian that has not received a sample, we will gladly send postpaid a liberal sample upon request. No obligation.

DETROIT VETERINARY SUPPLY CO.
Detroit, Michigan
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MASON'S *Kennel Fences*

Best for Dog Hospitals and Boarding Kennels

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Mason's are Real Kennel Fences—Strong, Good Looking and sold under a Money Back Guarantee to hold the largest and strongest dogs. Used and approved by best Kennels everywhere.

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Describing Permanent and Movable Dog Fences, Kennel Stalls, and Gates at Low Direct Factory Prices.

MASON KENNEL FENCE CO., Box 77, Leesburg, Ohio

GUARANTEED TO GIVE SATISFACTION

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ACCEPTED AND USED BY THE PROFESSION SINCE 1900

In the treatment of Splints, Spavins, Sidebones, Curbs, Inflamed Tendons, Bursal Lameness, etc.

"M. A. C. HAS NEVER BEEN SUCCESSFULLY IMITATED"

CARTER-LUFF CHEMICAL CO., HUDSON, N.Y.

PRICES

SINGLE BOTTLE	$ 2.00
¼ DOZEN 1 BOTTLE FREE	5.00
½ DOZEN 2 BOTTLES FREE	8.00
1 DOZEN 4 BOTTLES FREE	15.00
2 DOZEN 4 BOTTLES FREE	25.00

FOR PRICES IN CANADA write to
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AGENTS SOUTHERN STATES
Kentucky Serum Co.
LOUISVILLE, KY.

THRIFTY

These days every penny counts and naturally it pays the Veterinarian to be THRIFTY. He may or may not be a SCOTCHMAN, but will have Scottish inclinations, when it comes to saving money. The Veterinarian by purchasing his products from the Missouri Valley Serum Co., will save himself a large amount of money on his year's business.

Consult our True-Blue Drug Catalogue—if you have not already received one, we will be glad to send you a copy.

Missouri Valley Serum Company

50 N. 2nd St. Kansas City, Kansas

as will enable him to proceed to San Francisco, Calif. and sail on transport scheduled to leave that port on or about August 22, 1936, for the Panama Canal Department for duty with the Veterinary Corps.

Major Raymond I. Lovell is assigned to duty at Vancouver Barracks, Wash., effective upon completion of his present tour of foreign service.

The appointment of First Lieutenant Walter Tederoff Carll, Veterinary Corps Reserve, as first lieutenant in the Veterinary Corps, Regular Army, with rank from May 22, 1936, is announced. He will report to the commanding officer, New York port of embarkation, Brooklyn, N. Y., for assignment to duty.

Veterinary Reserve Corps

New acceptances:

Dickman, Andrew Jackson, Capt., 727 S. Virginia St., Reno, Nevada.

Bridges, Duford Forrest, 1st Lt., Route 1, Doerun, Ga.

Schneider, Morris David, Jr., 1st Lt., 2616 N. 29th St., Phila., Pa.

Willers, Karl Harry, 1st Lt., 1028 Greenwood Ave., Canon City, Colo.

SITFASTS

if not promptly treated, often become stubborn and difficult to heal.

Removal of the harness and the application of poultices of Antiphlogistine, until the inflammatory process subsides, is generally all that is necessary to bring about complete healing.

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Sample and literature on request

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Jen-Sal Blackleg Bacterin

FORMOLIZED — KILLED CULTURE

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Extensive field and laboratory tests indicate that the degree of lasting immunity produced by Jen-Sal Blackleg Bacterin is equal to that of any other immunizing agent for this disease.

JEN-SAL PRODUCTS PROTECT YOUR REPUTATION

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Pustulant Abcesses,

Always a troublesome condition, are best controlled by the use of compresses saturated with

THERAPOGEN

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